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A CONTINUATION OF THE CRAFT PROJECT COMPARING READING APPROACHES WITH DISADVANTAGED URBAN NEGRO CHILDREN IN PRIMARY GRADES. FINAL REPORT.

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THIS EXTENSIVE REPORT DESCRIBES THE CONTINUATION OF A PROJECT WHICH INVESTIGATED THE READING PROGRESS OF DISADVANTAGED URBAN NEGRO CHILDREN FROM FIRST THROUGH THIRD GRADE USING TWO BASIC TEACHING APPROACHES. THE PROJECT OPERATED IN TWELVE NEW YORK CITY PUBLIC ELEMENTARY SCHOOLS. SPECIFICALLY DESCRIBED ARE THE SECOND-GRADE CONTINUATION PROCEDURES, THE THIRD-GRADE FOLLOWUP STUDY, AND A SMALLER SCALE REPLICATION STUDY IN THE FIRST AND SECOND GRADES. THE EXPERIMENTAL TEACHING TECHNIQUES WERE (1) THE SKILLS-CENTERED APPROACH, WHICH INCLUDED A BASAL READER METHOD AND A PHONOVISUAL METHOD, AND (2) THE LANGUAGE-EXPERIENCE APPROACH IN WHICH READING MATERIALS WERE DEVELOPED FROM THE EXPERIENCES AND VERBALIZATIONS OF THE CHILDREN. THE SECOND APPROACH WAS SUPPLEMENTED BY AN AUDIOVISUAL METHOD. IN THE REPLICATION STUDY, AN ADDITIONAL "PILOT" METHOD WAS USED WHICH COMBINED FEATURES OF ALL THE METHODS. RELATED VARIABLES SUCH AS SEX DIFFERENCES, KINDERGARTEN EFFECTS, EFFECT OF EARLY READING, AND TEACHER CHARACTERISTICS WERE ALSO STUDIED. APPENDIXES CONTAIN SOME MEASUREMENT INSTRUMENTS AND EXTENSIVE STATISTICAL TABLES. (LB)

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Project No. 5-0570-2-12-1
Contract No. OE 6-10-063
January, 1968

A CONTINUATION OF THE CRAFT PROJECT

Comparing Reading Approaches with Disadvantaged Urban Negro Children in Primary Grades

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
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A CONTINUATION OF THE CRAFT PROJECT
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Project No. 5-0570-2-12-1
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Albert J. Harris
Coleman Morrison
Blanche L. Serwer
Lawrence Gold

January, 1968

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UD 006 578

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Foreword and Acknowledgments

The CRAFT Project was an ambitious effort to study the effectiveness of different ways of teaching reading to disadvantaged urban Negro children. It involved a three-year study of a population of over 1,300 children, and a replication for two years with over 600 children.

The project was made possible by a contract from the U.S. Office of Education for 1964-66, and the continuation study reported herein was made possible by a second U.S.O.E. contract for an additional two and a half years, 1966-68. In addition to federal support, the project received many kinds of assistance from the Board of Education of the City of New York, and from the Division of Teacher Education of The City University of New York. For this support we are all very grateful.

The project has been dependent on so many people that it is impossible to express in any adequate fashion the gratitude that so many have earned. They are listed below, and each one contributed usefully to the project. Yet, it is impossible not to give special thanks to Mrs. Helene M. Lloyd, Assistant Superintendent of Schools, who marshalled support at all levels within the Board of Education, and to Dr. Harry N. Rivlin, who as Dean of Teacher Education during the first two years, provided wise guidance and unfailing support through financial and other difficulties.

The undersigned initially selected the variables to be studied, has made the major administrative decisions, and accepts responsibility for any errors that may have inadvertently occurred either in the project operations or in the analysis and interpretations of the data. The assistant directors (Drs. Serwer, Gold, and Morrison) skillfully guided the ongoing operations and concur in the conclusions which they have helped to shape. This report has been a joint effort which contains words as well as ideas of the four of us.

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To them, and to all the other participants each of whom was essential, we extend our heartfelt thanks.

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CHAPTER I

INTRODUCTION

The CRAFT* Project is a three-year comparative study of methods of teaching reading to disadvantaged Negro children in New York City. The first year, 1964-65, CRAFT was one of the 27 studies of first grade reading that received financial assistance from the U.S. Office of Education and were aided by a special coordinating center at the University of Minnesota. CRAFT received a second contract from the U.S.O.E. for a 2-1/2 year extension in order to continue with the specific teaching methods in the second grade and then to follow-up the children through the third grade. The present report is the final report of the full three-year project, and contains detailed analyses of the second and third grade results. For brevity and convenience, the first grade study will be referred to below as CRAFT 1, the second grade continuation as CRAFT 2, and the third grade follow-up as CRAFT 3.

A number of reports about this project have already been made public. A detailed report on the first year of the project was published on March 1, 1966 (Harris & Serwer, 1966a); copies were quickly exhausted, but the report may be obtained in microfiche or hard copy through ERIC (Educational Resources Information Center of the U.S. Office of Education) as ED 010 037. A brief summary of CRAFT 1 was published in the May, 1966 issue of The Reading Teacher (Harris & Serwer, 1966b) and has been reprinted in a volume containing the summaries of the 27 cooperative first grade reading projects (Stauffer, 1967). A supplementary analysis of instructional time as a factor in the CRAFT 1 results was published in the Reading Research Quarterly (Harris & Serwer, 1966c). A brief summary of the CRAFT 2 findings appeared in the May, 1967 issue of The Reading Teacher (Harris, Serwer, & Gold, 1967).

The present volume also contains a report of the CRAFT Replication Project which was carried out in first grade classes in 1965-66 and in second grade classes in 1966-67, with local resources. The first grade replication will be called Replication 1 below, and the second grade replication will be called Replication 2.

In later chapters, familiarity with CRAFT 1 procedure and results will be assumed. For this reason, it seems desirable to present a summary of CRAFT 1 here.

---

*Comparison of Reading Approaches in First Grade Teaching with Disadvantaged Children.

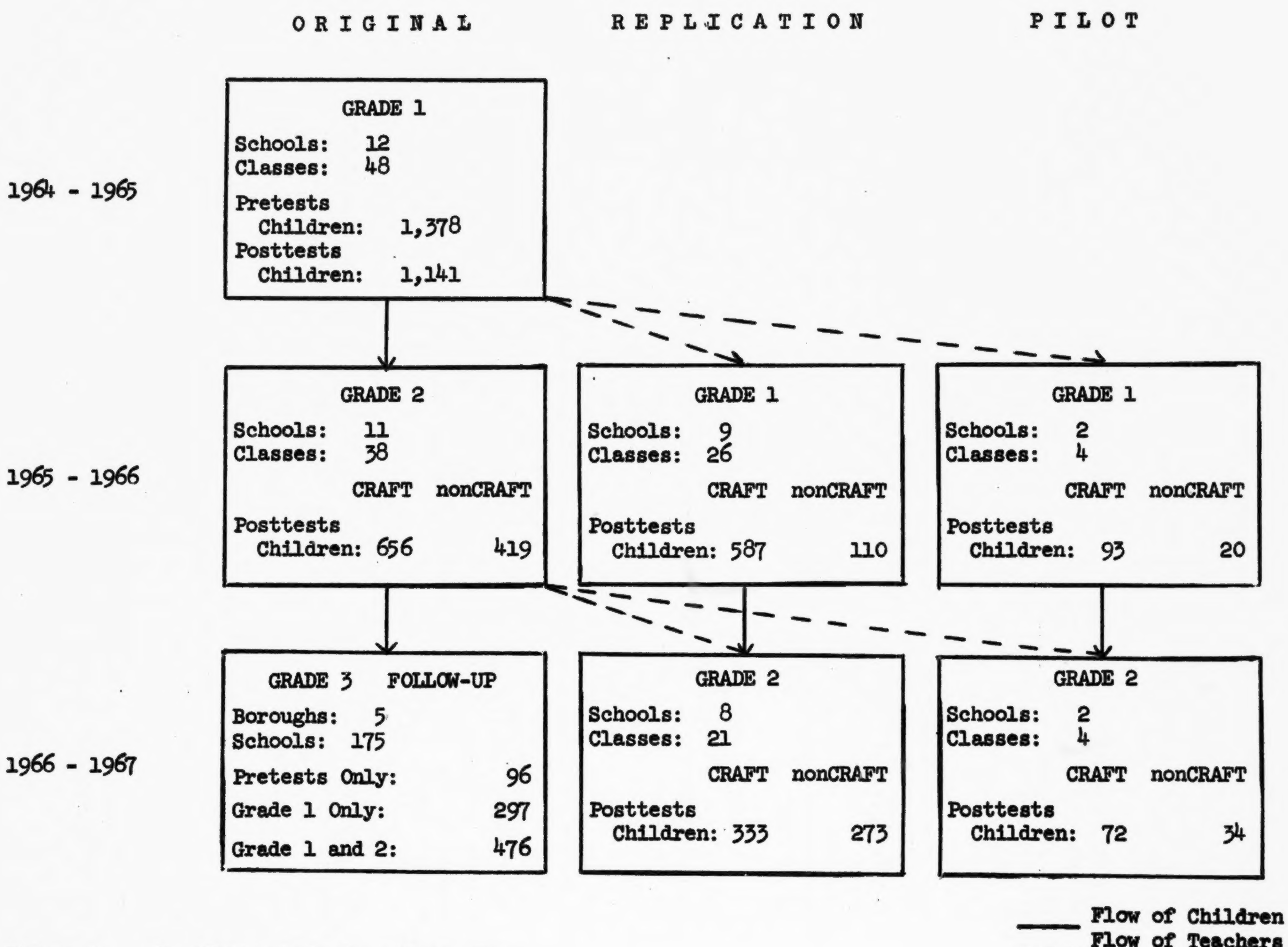
ORIGINAL
REPLICATION
PILOT
1964 - 1965
GRADE 1
Schools: 12
Classes: 48
Pretests Children: 1,378
Posttests Children: 1,141
1965 - 1966
GRADE 2
Schools: 11
Classes: 38
CRAFT nonCRAFT
Posttests Children: 656 419
GRADE 1
Schools: 9
Classes: 26
CRAFT nonCRAFT
Posttests Children: 587 110
GRADE 1
Schools: 2
Classes: 4
CRAFT nonCRAFT
Posttests Children: 93 20
1966 - 1967
GRADE 3 FOLLOW-UP
Boroughs: 5
Schools: 175
Pretests Only: 96
Grade 1 Only: 297
Grade 1 and 2: 476
GRADE 2
Schools: 8
Classes: 21
CRAFT nonCRAFT
Posttests Children: 333 273
GRADE 2
Schools: 2
Classes: 4
CRAFT nonCRAFT
Posttests Children: 72 34
Flow of Children
Flow of Teachers

Figure 1: The CRAFT Study Over Three Years

1. First Year of the CRAFT Project

CRAFT 1 was planned in the spring and summer of 1964 and operated during the 1964-65 school year.

The Schools

The project operated in 12 New York City elementary schools. Two schools were located in central Harlem; six in the Bedford-Stuyvesant section of Brooklyn; and four in the South Jamaica section of Queens. Pupil populations in all of the schools were almost 100 per cent Negro. All schools were known to have been at least a half-year retarded on the most recent city-wide reading test in third grade; median grade scores for the schools near the end of third grade had ranged from 2.6 to 3.4. Eleven of the 12 schools were in neighborhoods with median annual family incomes ranging from $3,744 to $3,918. The twelfth school, in a lower middle-class Negro neighborhood, was known to enroll a large number of dependent children placed in foster homes.

There were 48 experimental classes, four in each school. All of the schools had other first-grade classes that were not involved in the experiment.

Instructional Methods

The main comparison was between a Skills-Centered Approach and a Language-Experience Approach. The SC Approach emphasized the need for order, structure, and built-in repetition. Skills were introduced in specific sequences, the vocabulary was carefully controlled. and the teacher followed manuals that gave detailed lesson plans. Two skills-centered methods were used.

The first of these was the BR Method, in which the teachers used the full materials supplied by the publisher (preprimers, primer, first reader, accompanying workbooks, word and phrase cards) and followed the lesson plans in the teachers' manuals as closely as possible. The three basal series available in the experimental schools (Scott, Foresman Basic Readers; Ginn Basic Readers; Harper & Row *Alice and Jerry* books) were judged to be sufficiently similar in content and methodology to be considered together as providing one method.* Teachers were encouraged to use an "enriched" rather than an "impoverished" interpretation of the BR Method. Thus, they were encouraged to utilize the suggestions in the manuals for enrichment and supplementary activities, to encourage oral and written expression, and to teach social studies, science, art, and music, as prescribed in the city curriculum.

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*Although original plans called for use of "integrated" basal readers, none of the publishers had such materials complete for the first grade by September, 1964.

The other skills-centered method, called the Phonovisual Method (PV), combined use of basal readers for silent and oral reading with an intensive, systematic phonics method for teaching word recognition (the Phonovisual Method). Each day the teacher taught a phonics lesson for 20 to 30 minutes, substituting this for the program in phonics and structural analysis contained in the basal reader manuals. At a separate time the teacher taught new vocabulary and conducted oral and silent reading in a basal reader. Provisions for enrichment were intended to be the same in both skills-centered methods.

The Language-Experience Approach emphasized the need for self-expression through the use of the child's oral language as a basis for beginning reading materials. Shared experiences were provided by the teacher through taking trips and classroom experiences with pets, science experiments, etc. Other experiences came from the personal lives of the children. Out of the discussion of these varied experiences, charts were developed and used for reading and writing, for skills instruction, and for drill. There was a gradual transition to reading books in small groups and eventually to individualized reading.

The Language-Experience Approach included two methods. These differed in the amount of audio-visual equipment and training provided to the teachers. The "regular" Language-Experience Method (LE) allowed the teachers to use whatever audio-visual equipment and supplies were normally available to them (actually very little), but did not provide any extra AV resources or any training in the use of AV procedures in the teaching of reading.

The Language-Experience Audio-Visual Method (LE-AV) provided its teachers with a variety of AV equipment: overhead projectors, Polaroid and Kodak cameras, film-strip projectors, tape recorders, sets of earphones for a listening corner, etc. A half-time audio-visual consultant gave specific instruction in the use of the equipment and cooperated with the reading consultants in the development of AV teaching methodology.

There were, then, two approaches (Skills-Centered and Language-Experience), and four methods: I, Basal Reader (BR); II, Phonovisual (PV); III, Language-Experience (LE); and IV, Language-Experience, Audio-Visual (LE-AV). There were 12 classes for each method, 24 classes for each approach. Within each school there were two Skills-Centered classes and two Language-Experience classes. Thus each SC Method operated in six schools, and each LE Method in six schools. The methods were paired as follows: I with III in three schools; II with III in three schools; I with IV in three schools; and II with IV in three schools. These four patterns were assigned to the schools by drawing lots.

Subjects

From the total first-grade enrollment in each school enough names were chosen at random for four classes. These children were assigned at random to the two methods,* with care taken to balance those with or without kindergarten experience. About two-thirds of the children had attended kindergarten while about one-third had not.

At the opening of school there were about 1,700 children in the 48 classes, with a mean of 35 children per class. There were approximately equal numbers of boys and girls. The number who completed the pretest program in October was 1,372. By the time the posttests were completed, early in June, there was a further loss of 17.2 per cent, leaving 1,141 pupils for whom both pretest and final scores were available. These comprised the first-grade experimental population. As pupils transferred from experimental classes to other schools they were replaced by new entrants, keeping class size fairly constant and equal to the average size of non-experimental first-grade classes in the same schools. The children were considerably retarded in most aspects of reading readiness, as explained below.

Teachers

The teachers had volunteered for the project, knowing that they would be paid for the required after-school work such as attending workshop sessions and filling out research forms, and that the principals favored their participation. Within each school the teachers drew lots for the two methods assigned to that school.

The teachers varied greatly in age and experience. Most were very young; a few were near retirement. Total experience ranged from 0 to 40 years; first-grade teaching experience ranged from 0 to 29 years, with a mode of one year and a median of two years. Most of the teachers had bachelor degrees with some graduate work short of a master's degree. On the administration of the San Diego Teacher Inventory of Approaches to Teaching of Reading at the beginning of the year there was a general preference for the "Basic" scale, with no significant differences among the groups assigned to the four methods.

An intensive teacher-training program was carried out by the project's assistant director and the six part-time consultants provided by the Board of Education (four in reading, one in early childhood education, one in audio-visual instruction). A workshop for each of the four methods met twice before school opened, then weekly for three months, then bi-weekly. Each teacher was visited by the assistant director and a reading consultant; these visits were followed by evaluative discussions. The audio-visual consultant worked only with the 12 LE-AV teachers. The early childhood consultant was especially helpful in structuring the five-week readiness period which ended with the completion of the pretests.

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*In two schools a class of high-rated kindergarten children was set apart, and randomized choice of children for CRAFT classes was made among the remaining children. In another school, a few extremely slow children were removed before randomized assignment.

Tests

Pretests included: Murphy-Durrell Diagnostic Reading Readiness Tests, Metropolitan Readiness Test (Word Meaning and Listening subtests), and Thurstone Pattern Copying and Identical forms. Four subtests were usable as covariates: Murphy-Durrell Learning Rate, Metropolitan Word Meaning and Listening, and Thurstone Pattern Copying.

For posttests, the Stanford Primary I Battery, Form X, was given to all pupils. Several oral reading tests and two samples of written composition were scored for a randomly selected sample of four children (two boys, two girls) from each class.

The San Diego Inventory of Pupil Attitude was also administered as a group test, and the San Diego Teacher Inventory was filled out again by each teacher near the end of the year.

Experimental and Statistical Procedures

The instructional period was 140 days from the final pretest to the first posttest. Teachers in the nine schools with full five-hour days (9-12, 1-3) were instructed to spend 180 minutes a day on reading and supportive activities; those in the three schools which were limited to a four-hour day (8-12) because of over-crowding were instructed to spend 150 minutes a day.

All four methods were treated as "experimental" methods and there was no "control group" in the usual sense. Hawthorne effect should have been fairly equal among the methods. Three groups of teachers were using instructional procedures new to them, and the fourth group (BR) was using a procedure somewhat different from their previous practices.

Uniqueness of the four methods was established by class visits, by scores derived from Daily Logs kept by the teachers for five consecutive days each month, and from scores derived from OScAR R, an observational procedure developed for the project by Donald M. Medley.

The statistical program was carried out with IBM 7040 and 7094 computers. The following steps were taken:

1. Intercorrelations were computed between the pretests and the five Stanford subtests. Because of data missing for some classes (due to faults in test administration) the number of usable pretests was reduced to four, as listed above.

2. A program for multiple covariance with unequal N's was adapted from Cooley and Lohnes (1962), and adjusted class means were obtained for each Stanford subtest.

3. The adjusted means were used in a three-way analysis of variance which checked for differences between approaches; between the two methods in each approach; and for school differences.

4. The results of the individually administered tests were similarly treated. The covariance program was applied to the Gilmore Accuracy Score, the Gates Word Pronunciation Test, and the "lucidity" score derived from one of the written compositions.

5. An intercorrelation matrix of 54 input and adjusted outcome measures was scanned for correlations that might reveal significant factors. Those located were then studied further.

Pretest Results

The mean score for the CRAFT 1 pupils in October on the seven pretests for which percentile norms were available ranged from the first percentile to the 44th percentile, with a median at the 20th percentile. They had great difficulty with the Murphy-Durrell Phonemes subtest, with many zero scores and a mean at the first percentile. A serious vocabulary deficiency was shown on the Metropolitan Word Meaning subtest (14th percentile). The relatively good showing (44th percentile) on the Murphy-Durrell Learning Rate subtest, a kind of standardized lesson in which words are taught by a "look and say" procedure and then tested, suggested comparatively good ability to learn by a sight recognition method.

Posttest Results

The most conspicuous finding of the intercorrelational analysis was that the teacher's use of time was significant. The Daily Logs kept by the 48 teachers for five consecutive days in five consecutive months provided scores for Total Time, Reading Time, and Supportive Activities Time. Reading Time had significant correlations with the adjusted class means on most of the posttests, ranging from .40 to .61. Correlations for Total Time and Supportive Activities Time were not significant.

The two Approaches were compared to see how teachers used their time. Total instructional time per day was quite similar: a mean of 170 minutes for Skills-Centered teachers, 175 minutes for Language-Experience teachers. However, the Skills-Centered teachers spent 55 per cent of their time on Reading activities, while the Language-Experience teachers spent only 39 per cent on Reading and the other 61 per cent on Supportive Activities.

A comparison was made of the results in the three "split-session" schools with the nine full-day schools. Of fifteen comparisons, 11 showed significant differences favoring the full-session schools. The LE-AV Method was more severely handicapped in the split-session schools than either of the Skills-Centered methods. There were no regular LE classes in the split-session schools.

Because of these findings, the final comparisons between approaches and methods were based on the adjusted class means for the full-session schools only. Analyses of variance were computed for each test between the two approaches, and between the two methods within each approach.

The results of these analyses may be summarized as follows:

1. Between BR and PV, the only significant difference was in favor of BR on Paragraph Meaning.

2. Between LE and LE-AV, the latter was ahead on all seven measures, with statistically significant differences on four of the measures, and equalled SC results.

3. The LE Method had the poorest results of the four methods.

4. The Skills-Centered Approach surpassed the Language-Experience Approach on six measures, with significant differences on four of them (Stanford Word Reading, Spelling, and Word Study Skills, and Gilmore Accuracy).

5. When the raw score means were translated into grade equivalents many of the differences disappeared (a difference of more than three raw score points may be needed to show a grade score difference of one-tenth of a year). The grade score means are shown in Table 1.1. Most of the differences between methods were of the order of one-tenth of a year. Even when such differences are statistically significant, they are not of much practical consequence.

6. The CRAFT pupils made higher mean grade scores on the Gilmore Accuracy (1.8) and Gates (2.3) individually administered tests than on the subtests of the Stanford, on which their mean was 1.5.

7. Analyses were also carried out on a number of unadjusted posttest measures on which the covariance analysis could not be performed.

    a. On the San Diego Inventory of Pupil Attitude the BR Method was significantly highest, and the PV Method was lowest.

Table 1.1

Adjusted Grade Score Means for Full-Session Classes, CRAFT 1

Test	Skills-Centered Approach			Language-Experience Approach		
	BR	PV	Total	LE	LE-AV	Total
Stanford						
Word Reading	1.5	1.6	1.5	1.4	1.5	1.5
Paragraph Meaning	1.6	1.5	1.5	1.5	1.5	1.5
Vocabulary	1.5	1.5	1.5	1.5	1.5	1.5
Spelling	1.7	1.7	1.7	1.6	1.7	1.6
Word Study Skills	1.5	1.5	1.5	1.4	1.5	1.4
Gilmore Oral, Accuracy	2.0	1.8	1.9	1.7	2.0	1.8
Gates Word Pronunciation	2.4	2.3	2.3	2.3	2.3	2.3

b. The SC Approach scored substantially higher than the LE Approach on three tests individually administered to the sample of four children per class: the Gilmore Rate score, the Fry List of Phonetically Regular Words, and the Karlsen Phonemic Word List. However, a similar difference on the Gates Word Pronunciation proved not to be significant after covariance adjustments, and therefore the significance of the differences on the unadjusted word lists is doubtful. The PV Method had somewhat higher means than the BR Method on these tests.

c. None of the several scores based on the two writing samples showed significant differences between approaches or methods.

8. Following the publication of the CRAFT 1 report, a further analysis of instructional time was carried out (Harris & Serwer, 1966c). The Stanford Word Meaning and Paragraph Meaning adjusted class means were used for this analysis. When correlations were computed separately for each method (with a maximum of 10 degrees of freedom), they had to be quite substantial to be significantly greater than zero.

a. The correlations between Reading Time and posttests were highest and significant for BR, lowest and non-significant for LE, and doubtfully significant for PV and LE-AV.

b. Each of the four methods had a distinctive pattern of time distribution; but there was substantial variation among the teachers in any one method.

c. Of five kinds of reading activities and 10 supportive activities, none was related to achievement consistently in all four methods. There was, however, a general tendency for the teachers who spent more time on the activities distinctively characteristic of their prescribed method to get better results than those who spent less time on these activities. Time spent with basal readers and in sight word teaching was most significant in the BR Method. Time spent in writing, dramatization, social studies, and science was significant for the LE Method. Audio-Visual time was positively related to outcomes for the LE-AV teachers and gave predominantly negative correlations for the other three methods. For the PV Method the only significant correlations were positive with story telling and with art.

9. The Medley OScAR R observational schedule was developed for this project in an attempt to accomplish two separate tasks. The first was to verify that there were genuine differences among the methods; this was accomplished. The second was to check whether certain observable characteristics of teacher behavior, independent of method, would affect pupil learning. In the CRAFT 1 report it was stated that none of the OScAR R scores correlated significantly with achievement. A further analysis of the first-grade data done subsequently has shown some significant correlations that are specific to a particular instructional method. Details will be given in Chapter V.

2. The Rationale for Continuation

In planning the CRAFT Project, it was hoped from the beginning that it would be possible to follow the progress of the pupils through at least the second grade, and preferably through the third grade. There were several lines of reasoning, all of which pointed in the direction of continuing the study beyond first grade.

Several studies comparing methods of teaching reading had shown that the method which is ahead at the end of the first grade is not necessarily ahead at the end of the third grade. One of the best known of these (Sparks & Fay, 1957) compared a specific method of intensive phonics instruction with basal reader instruction; although the phonics method was clearly ahead at the end of the first grade, the two methods were not significantly different in their results at the end of the third grade. Another relevant study compared the effects of different amounts of readiness work before beginning reading instruction, for children low in readiness (Bradley, 1956). The control group was given reading instruction from the beginning of the first grade; experimental pupils were given readiness work for 5, 8, or 10 months. Early in the second grade, the control group was well ahead. But by the end of second grade the two groups were equal, and by the end of third grade the differences, although not statistically significant, favored the readiness group.

There was some reason to anticipate that the Language-Experience Approach might have delayed beneficial effects. The emphasis in this method on providing new information and ideas, and giving much attention to oral language development, made it probable that less time would be devoted by LE teachers to the teaching of word recognition skills in first grade. As has been noted above, they actually did spend less time on reading activities as compared with supportive activities. The language emphasis might, it was thought, show an advantage at a later point in reading when word recognition becomes subordinate to comprehension. It was also noted that standardized first-grade achievement tests would be more likely to contain basal reader vocabulary than experience chart vocabulary. This trend would be less marked in second and third-grade reading tests as test vocabulary becomes more general and book reading becomes a more important part of LE procedure.

Another method which was thought to have possibilities of delayed benefit was the Phonovisual Method. On the pretest most closely related to aptitude for phonic learning (Murphy-Durrell Phonemes), the CRAFT 1 children as a total group had scored very low. It therefore seemed possible that they would take longer to master the phonic system, and that functional use of phonic skills might not become evident for many of them until the second grade.

The plan for the study called for maintaining the special features of each method through CRAFT 2. While this entailed considerable effort in teacher training, it seemed far better to try to keep the methods distinct as long as possible, rather than just to follow up the progress of the children in an uncontrolled second-grade reading program. By maintaining the methods, their possible delayed effects would have a real chance to become evident.

Knowing the high pupil turnover rate in the schools being used, it did not seem possible to maintain experimental classes through the third grade. Considerably more than half of the children could be expected to leave their original schools before the end of the third year. However, city-wide third-grade reading tests made it possible to plan to follow the individual children through the third grade. Record-keeping procedures were established which made it possible to locate the schools to which pupils moved, and to retrieve their scores on the third-grade city-wide tests.

3. Plan of the Continuation Study

The Second-Grade Plan

Briefly, the plan for CRAFT 2 was to maintain the two approaches and four methods of CRAFT 1 as intact as possible through the second grade, and to compare results after a uniform period of second-grade instruction. Adjustments had to be made to the gradual loss of pupils and to the loss of one of the original 12 schools. A program was set up to train the second-grade teachers in the specifics of the methods to which they were assigned. The assistant project director and several consultants taught the workshops and visited and consulted with the teachers. The CRAFT 2 testing program included group testing (Metropolitan) in reading, spelling, arithmetic, and attitude toward reading (San Diego), and measures of oral reading, word recognition, and written composition were secured for a sample of four children per class. Teacher use of time was recorded in Daily Logs, and teacher behavior was recorded through use of the OScAR R.

The procedures of CRAFT 2, very briefly outlined in the preceding paragraph, are described in Chapter III.

The Third-Grade Plan (CRAFT 3)

The procedures that made it possible to follow the children through the third grade may be briefly summarized as follows: (1) At the beginning of the first grade the permanent record card of each CRAFT pupil was conspicuously stamped with the word CRAFT. (2) At any time during the three years, when a CRAFT pupil left the school, the clerk kept a record of the new school to which the child's records were sent. (3) These records were collected periodically by the research staff and the changes were recorded. (4) The child's new school was sent a communication indicating the project's interest in following all CRAFT children and requesting notification if any CRAFT child transferred again. (5) During the Fall of 1966, a research assistant spent many weeks setting up new record books by school and class for all of the original 1,372 CRAFT 1 children who could be located. (6) Three sets of reading tests were administered city-wide during the 1966-67 year: the New York State Reading Test in October; Metropolitan reading tests in November; and Metropolitan reading and arithmetic tests in April. When the results of these tests became available research assistants spent many days at the Board of Education offices copying the scores of the CRAFT children. (7) Appropriate statistical procedures were used in analyzing the third-grade results.

The procedures of the third-grade part of the continuation study are given in greater detail in Chapter VI.

4. The Rationale for Replication

In both CRAFT 1 and CRAFT 2 there was no time to pretrain the teachers. Although there were workshop meetings before the beginning of the school year, the bulk of the training had to be given during the year. The teachers learned the special features of the method to which they were assigned as they used it. It can be expected that the results will show what teachers can do when a method is new to them. The more unfamiliar a method may be, the more it may be handicapped in such a comparison.

In the original proposal for the CRAFT Project there was provision for repeating or replicating the study by having the same teachers use the same methods with a new group of children, in both first and second grades. This would, it was expected, provide a comparison of the methods when used by teachers who had become reasonably familiar with the method.

Funds for replication were not included in the U.S.O.E. contract under which CRAFT 2 and CRAFT 3 were carried out. However, local resources were found to support the "replication study" and its results will be presented in Chapters VII and VIII.

5. Plan of the Replication Study

Replication in First Grade

The main purpose of the Replication Study was to find out whether a year of prior experience in using one of the CRAFT methods had any significant effects on the results teachers were able to get with the method.

All of the 48 first-grade CRAFT teachers were invited to remain in the project for a second year, repeating the same teaching method with a new group of pupils. Thirty agreed to do so. Of the 18 who did not, 13 were unavailable for such reasons as promotion to a non-teaching position, moving out of the city, or maternity leave.

Of the 30 teachers, 26 were assigned during 1965-66 to replicate the method they had used the previous year. Four teachers took part in a "Pilot Study" trying a new method which was a combination of LE-AV with Phonovisual. Thus there were five methods in Replication 1: the original four methods, and the new "Pilot" method. The four "Pilot" teachers had all used either LE-AV or PV in the first year.

The Replication 1 research design was as close as possible to the original CRAFT design. A brief readiness period was conducted, followed by the administration of pretests early in October. Workshop and supervisory activities were less intensive than in the first year. The Stanford Primary I Battery was administered after 140 days of instruction, and measures of oral reading and written composition were obtained for a random sample of four children per class. The San Diego pupil and teacher inventories were also administered as posttests. The statistical treatment was very similar to that used in CRAFT 2. Replication 1 procedures and results are described in Chapter VII.

Replication in the Second Grade

The plan for Replication 2 was to maintain as many as possible of the 30 first-grade classes through another year of instruction with the same method as in the first grade, taught by a second-grade teacher who had used that method in CRAFT 2. Thus, in 1966-67 there were 26 Replication 2 classes, 5 or 6 classes for each of the four original methods and 4 classes in the Pilot Method. The procedures and measurement program were very similar to those used in CRAFT 2. Second-grade Replication 2 procedures and results are described in Chapter VIII.

6. Objectives

The main objectives of CRAFT 2 may be stated as follows:

1. To determine the growth of the CRAFT children in several aspects of reading and writing during a period of nearly two years of reading instruction.
2. To compare the reading achievement of CRAFT children with that of children who entered the experimental classes after the instructional program began and therefore were not part of the experimental population.
3. To determine if there were significant differences in reading achievement between Approaches and Methods over the two-year period.
4. To determine if there were significant differences in reading achievement between Approaches and Methods in the second grade.
5. To compare the progress in reading over two years of specific sub-groups:
    a. Boys and girls
    b. Early readers and the rest of the CRAFT population
    c. Children with and without kindergarten experience

6. To determine if there are patterns of high and low achievement scores characteristic of the CRAFT population as a whole, or of a particular approach or method.

7. To analyze the use of instructional time in the four methods and to inquire into the relationship between the use of time and pupil achievement.

8. To analyze the various data concerning teachers, including age, education, experience, attitudes toward teaching methods (San Diego), and aspects of teaching procedure (OScAR R) for clues concerning the reasons for differences in results among the teachers using the same teaching method.

The main objectives of CRAFT 3 may be stated as follows:

1. To determine how children taught for two years in CRAFT classes achieved in reading during the third grade.

2. To compare the reading results for the two approaches and four methods after three years of reading instruction.

3. To determine if there are significant differences in amount of reading gain during the third grade, when comparisons are made by approach, by method, and by sex.

4. To compare the reading achievement of children who had two years of CRAFT instruction with that of (a) children who had between one and two years of CRAFT instruction; and (b) children who had less than one year of CRAFT instruction.

5. To compare the reading achievement in third grade of children with and without kindergarten experience.

6. To trace through the third grade the progress in reading of children who were identified as early readers at the beginning of first grade, as a total group and by approach.

The main objectives of Replication 1 may be stated as follows:

1. To compare the results of the two approaches and four methods when taught by teachers who had a year of prior experience in teaching with the same method.

2. To study the learning results of the Pilot Method, combining PV and LE-AV features.

3. To compare the results of the teachers in each method in Replication 1 with the results of the same teachers in CRAFT 1.

4. To study the use of instructional time in Replication 1 and

the relationship of time variables to pupil achievement.

5. To check on the hypothesis that teachers in the LE Approach would, because of the greater unfamiliarity of that Approach, show more gain in pupil reading achievement than teachers in the SC Approach.

6. To check on the hypothesis that teachers in the PV and BR methods would achieve approximately equal results.

7. To check on the hypothesis that teachers in the LE-AV method would achieve better results than teachers in the LE Method.

8. To check on the hypothesis that teachers in the Pilot Method would show greater pupil achievement in reading than during the preceding year when they had used the PV or LE-AV Method.

The main objectives of Replication 2 may be stated as follows:

1. To compare the results of the two approaches and four methods when the children had been taught for two years by teachers who had a year of prior experience with the same method.

2. To study the results of the Pilot Method over a two-year period.

3. To compare the results of the second grade teachers in Replication 2 with the results of the same teachers in CRAFT 2.

4. To study the relationships of instructional time to achievement in Replication 2.

5. To check the hypothesis that the LE Approach would compare more favorably with the SC Approach in Replication 2 than in CRAFT 2.

6, To check the hypothesis that there would be no significant differences between the BR and PV Methods after two years of instruction by teachers experienced in the method.

7. To check the hypothesis that there would be no significant differences between the LE and LE-AV Methods after two years of instruction by teachers experienced in the method.

8. To check on the hypothesis that the Pilot Method would not differ significantly in results from the original four methods after two years.

9. To study the influence of kindergarten experience on reading achievement in Replication 2.

10. To study the influence of sex on reading achievement in Replication 2.

CHAPTER II

RELATED RESEARCH

While the literature on the teaching of beginning reading is voluminous and research studies in that area have been plentiful, research concerned specifically with the reading instruction of young, disadvantaged, urban Negro children is very scarce.

The recency of professional concern with the reading problems of the disadvantaged in general can be shown by inspecting the programs of the annual conventions of the International Reading Association. From 1956 through 1963, there were no papers in the convention programs whose titles indicated that they were specifically concerned with the reading problems of the disadvantaged. In the 1964 program, however, there were 13 papers in this area. In a U.S.O.E. bulletin entitled Teaching Young Children to Read, dated 1964 but giving the proceedings of a conference held in November, 1962, none of the titles of papers indicates a concern with the disadvantaged (Cutts, 1964). General concern with the reading problems of the disadvantaged seems to have arisen shortly after 1960, and to have resulted in printed papers and reports starting in 1963 or 1964.

Considering the recency of this concern, a paucity of published research in this area is inevitable. Nevertheless it is striking that in two books about teaching the disadvantaged which were published during 1966, one (Crow, 1966) does not discuss beginning reading methodology at all, while the other (Loretan & Umans, 1966) covers "Reading and Listening Skills in the Early Grades" in a chapter of only eight pages.

In 1965 a task force of the National Council of Teachers of English attempted to determine the effectiveness of language learning in special projects and programs for the disadvantaged across the U.S.A. Between March and July, 1965, 22 observers visited and reported on 190 programs, administered by 115 separate districts and agencies located in 64 different cities. The CRAFT Project was one of those visited. The task force report (Corbin and Crosby, 1965) was published in November, 1965. The report covered six areas--preschool, elementary, secondary, English as a second language, adult, and teacher training, and reading was but one of the aspects of language with which it was concerned. Nevertheless the four pages devoted to elementary reading contain some interesting observations. "Most schools visited used some form of a basal reader; others were using such approaches as Words in Color, i.t.a., Phonovisual, Language Experience, and individualized reading programs. . . Even a brief visit to research programs in reading revealed that more attention, materials, consultant help, and overall expectations were given to experimental groups as opposed to control groups. It would be interesting to reverse the procedure. . . Some observers believe that impressive results from i.t.a. and other new approaches to reading result less from the new approach than from emphasis placed on reading through the school day" (p. 84). Most of the primary grade reading programs listed in the report were of an informal tryout or action research nature, rather than carefully controlled experimentation; and they were programs in progress from which final reports could not be expected for some time.

1. Readiness for the Disadvantaged

The need for concentrated attention to the readiness deficits of disadvantaged children, and particularly of disadvantaged Negro children, has been stressed by Martin Deutsch. In one of his studies a wide variety of tests were given to Negro and white children of varying socio-economic status, at first-grade and fifth-grade levels. "Significant correlations with race were found in eight comparisons for the first graders, and in 18 for the fifth grade sample. The number of significant comparisons on SES for each group was 22." (Deutsch, 1965) In other words, inadequate patterns of language behavior characterized disadvantaged children in general, but in addition disadvantaged Negro children fell increasingly behind the disadvantaged white children between first grade and fifth grade. Deutsch's results have been influential in marshalling support for preschool compensatory education.

The Head Start Program, begun in the summer of 1965 in a large number of communities with support from the Office of Economic Opportunity, is a large scale effort to improve the school readiness of preschool disadvantaged children. As yet there has not been sufficient time to determine the effects of Head Start attendance on progress in reading (Silberstein, 1966). CRAFT 1 started nearly a year before the first Head Start programs in New York City, so none of the children in CRAFT 1 were enrolled in any Head Start program. In Replication 1 and 2 the number of children who had had Head Start experience was too small to warrant any conclusions.

An evaluation of pre-kindergarten programs for educationally disadvantaged children over a two-year period has been reported by staff of the New York State Education Department (Di Lorenzo & Salter, 1967). Eight districts were involved. In general, beneficial effects were found on intelligence and language measures, and the more effective pre-kindergarten programs were those with specific, structured cognitive activities. White experimental children maintained an advantage through kindergarten but did not increase it; nonwhite experimental children did not maintain their advantage over their controls. It was concluded that modifications in kindergarten and the early grades will probably be necessary if pre-kindergarten is to have lasting value.

An earlier study investigated the long-range effects of a first-grade readiness program (Bradley, 1956) with disadvantaged children in Philadelphia. In the experimental group systematic instruction in reading was delayed until the child was considered ready. The first group began reading instruction after five months of readiness work; the second group, after eight months; the third group, after ten months. The control group started with reading instruction in the first month of the first grade. Early in the second grade the control group was well ahead. But by the end of the second grade the experimental group equalled the mean scores of the control group, and by the end of the third grade the differences, although not statistically significant, tended to favor the experimental group.

Two of the 27 cooperative research studies in first-grade reading supported by U.S.O.E. during 1964-65 dealt specifically with the effects of reading readiness programs. One of them, conducted in Texas (Horn, 1966) dealt with children of Spanish-speaking background and therefore is not directly relevant to the present study. A Florida study (Spache, 1966) investigated the effects of reading readiness programs in eight Florida counties, in parallel white and Negro schools. Readiness tests were administered four times during the year and reading achievement tests were given in May. Pupils in the top quarter of the experimental groups were inducted into reading in September. The second quarter started reading in November, the third quarter in January, and the bottom quarter in March. The control groups were started in reading in September regardless of readiness scores. Specific materials to develop visual and auditory perception were used in the readiness groups, and teachers were given recommendations about the readiness needs of individual children as revealed in the test scores. "The program seemed to have an insignificant effect upon those pupils who were mature enough to read early in the school year, who hence participated in it only to a limited extent. The effectiveness of the program appeared to increase as the ability levels of the pupils decreased. . . For the Negro sample, the experimental treatment was significant for criterion achievement for the two lower quartiles only, but the nonsignificant differences favored the experimental treatment at all levels of ability. . . The Negro experimentals exceeded the white experimentals in reading achievement by a significant amount at the next to lowest quartile and by nonsignificant amounts at all other levels." The implication is that intensified and extended readiness programs deserve further tryout, particularly for the lower half of Negro pupils.

2. Beginning Reading Instruction for the Disadvantaged

The beneficial effects of improved first-grade conditions other than teaching method have been reported in a study from Philadelphia (Johnson & Kress, 1965). An Educational Improvement Program was concentrated in the first-grade classes of 61 elementary schools with low mean scores on standardized achievement and intelligence tests.

Class size was reduced, part-time classes were eliminated, experienced teachers were drawn from other grades when no experienced first-grade teachers were available, funds for materials were increased, and special consultants were provided. The reading scores at the end of 1963-64, the first year of the program's operation, showed substantial gains over scores obtained in the same schools in 1962-63.

The More Effective School Program in New York City has received much publicity. Starting in September, 1964,with ten elementary schools, the program has involved small classes, extra teaching personnel (four teachers for three classes), and many supportive staff such as remedial teachers and counselors. In 1966 average class size was 20.1, compared to 28.5 in control schools. Approximately three quarters of the pupils are Negro or Puerto Rican. For the ten original MES schools the unit cost per pupil for instruction was $898.63 in 1966-67, compared to $485.68 in control schools (Fox, 1967).

An evaluation performed under the auspices of the Center for Urban Education came to the conclusion that community relationships, school climate, and staff attitudes were good; but that "the MES program has made no significant difference in the functioning of children, whether this was measured by observers rating what children did in class, and how they do it, or whether it was measured by children's ability in mathematics or reading on standardized tests." (Fox, 1967, p. 121) One must conclude that small classes, extra teachers, and other expensive innovations do not necessarily improve classroom learning; they make improvements possible, but changed classroom procedures that take advantage of the smaller teacher-pupil ratio are needed.

In contrast to the emphasis in the above studies on such factors as lower class size, full school days, and experienced teachers, CRAFT 1 attempted to study the specific effects of differing methods of instruction under conditions typical for first grades in the schools in which the project operated. It did provide consultation for the teachers and some amplification of materials. But class size was not diminished, teachers were not selected for excellence or experience, and in three overcrowded schools the CRAFT 1 classes had shorter, split-session schedules along with the other first-grade rooms.

Within the 27 cooperative first-grade studies there were two besides CRAFT that used populations of disadvantaged children and studied the effects of teaching method.

In the City College project (Chall & Feldman, 1966) intensive and prolonged observations were made in first-grade classrooms, but no control was attempted over teaching methods or procedures. "There was some evidence that teacher competence, a thinking approach to learning, a sound-symbol emphasis in reading, and using appropriate level of lessons were positively related to reading achievement for this particular sample of children and teachers. . . A discrepancy was found between what teachers said they do in first-grade reading and what they were observed to do in their classrooms." Since all of the teachers in the study used an eclectic basal reader approach, the variations studied by Chall and Feldman would seem to correspond to the variations within the Basal Reader Method in CRAFT.

In Colorado a study was conducted (McCanne, 1966) in which Spanish-speaking children were taught by three methods: (1) a conventional English readiness and basal reader method; (2) a modified "Teaching English as a Second Language" method; and (3) a language-experience method. Thus, two of McCanne's methods corresponded to methods used in CRAFT. The teachers were all experienced and rated as excellent. The main conclusion was that the basal reader method was ahead on most of the tests given near the end of the first grade. McCanne speculated that "certain culturally determined thinking and behavior patterns, such as an unwillingness to initiate original expression in a formal school setting, may have been partly responsible for the superiority of the basal reader method in developing reading skills."

Summaries of the 27 studies were published in the May and October, 1966, issues of The Reading Teacher and have been reprinted as a paperback (Stauffer, 1967). A lengthy and detailed analysis of the cooperative studies has been published by the Coordinating Center at the University of Minnesota (Bond and Dykstra, 1967). In the chapter entitled, "Analysis of Instructional Methods," one finds that only 15 of the 27 projects were included "because they utilized a sample which was considered to be representative of the total population and an experimental program which was also used in another investigation." (Bond & Dykstra, 1967, p. 63). Thus CRAFT 1 and the McCanne project were not among the 15 because they used untypical populations.

The Bond and Dykstra report does, however, contain descriptive statistics on all of the 27 projects, including CRAFT, in Appendix A. So far as the results of their analysis of CRAFT 1 data are concerned, it needs to be mentioned that their tabular presentation of Stanford results on page A-23 unfortunately interchanged the results for the Basal Reader and Phonovisual methods, and that the means presented in that Appendix are uncorrected means based on individual pupils, whereas in the CRAFT 1 report major emphasis was given to classroom means as units corrected by covariance.

In both the McCanne and CRAFT 1 projects the basal reader results were somewhat better than the language-experience results. In the four projects with predominantly middle-class children, "Relatively few significant differences were found between the Language-Experience and Basal approaches. . . Little was found in this analyses to support a claim of superiority by either the Language Experience or Basal Method" (Bond & Dykstra, 1967, p. 108).

A similar disparity occurred in the comparison of basal reader results with basal program plus a supplementary phonics program. The Coordinating Center combined the results of four projects and concluded: "In general, basal programs accompanied by supplementary phonics materials led to significantly greater achievement in reading than did basal materials alone" (Bond & Dykstra, 1967, p. 94). In the CRAFT 1 results only two of the differences between the BR Method and the PV Method (basal plus phonics) were statistically significant, and those (Stanford Paragraph Meaning, and San Diego Pupil Attitude Inventory)both favored BR.

Thus in the first-grade comparisons the McCanne and CRAFT 1 projects found the basal reader method somewhat ahead of the language experience method with two disadvantaged but otherwise quite different populations, while with more representative populations the two methods were about equal. In CRAFT the basal reader method showed a slight advantage over basal reader plus phonics, while in the more representative populations supplementary phonics came out with some advantage.

These results indicate that the instructional procedures most effective with disadvantaged children are not necessarily the ones most effective with the majority of first-grade children. They support the desirability of research to find instructional methods that may be suited to a particular disadvantaged group.

A detailed analysis of instructional time as a factor influencing first-grade reading has been made, using the results of the CRAFT Project (Harris & Serwer, 1966,c). The results of that study have been summarized in Chapter I above. The authors pointed out that in comparative studies of methods in which time is not effectively controlled and recorded, instructional time may be a major uncontrolled variable and the validity of inferences drawn about relationships between methods and results may be somewhat ambiguous.

An important comparative study of reading methodology with disadvantaged urban children is one in which the Initial Teaching Alphabet (i/t/a) and the Peabody Language Development Kit (PLDK) were used in 32 first-grade classrooms in Nashville (Dunn & Mueller, 1966). Most of the children were Negro, since six of eight experimental schools and three of five control schools were segregated Negro schools, and the other schools were integrated. The findings indicated that i/t/a produced significantly better reading achievement than the basal readers used in control classes, and PLDK had a favorable effect on IQ and oral language but not on reading.

Unfortunately the study design was such as to enhance the motivation of the experimental teachers, while "In contrast, the control teachers were not stimulated or supported in any way by the project" (Dunn & Mueller, 1966, p. 12). This inequality of Hawthorne Effect was recognized and reported by the authors, and a replication was planned for 1965-66 to control more completely for Hawthorne Effect. Another source of ambiguity in the interpretation of results is the absence of any information, in the report, concerning control of instructional time or teacher variability.

In the Dunn & Mueller report no mention is made of any readiness period preceding reading instruction, so presumably reading instruction began at the beginning of the school year in the experimental classes. If there was a readiness period in the control classes (no information is given about the instructional program in control classes other than the name of the series used) this might be another uncontrolled variable in the study.

Despite these problems of research design, the Nashville project is of great importance in demonstrating that groups of disadvantaged first-grade children with mean IQ's in the 80's can, under favorable instructional circumstances, attain mean reading scores at or above the national norm. Even the control classes in the study had a mean reading grade score of 1.81, just about at the norm.

The Dunn & Mueller project also points out an alternative to the long readiness period reported favorably in the Bradley and Spache studies. The PLDK program may be regarded as a kind of readiness program, and produced favorable results when given in parallel with reading instruction rather than prior to it.

A second study was carried out by the Nashville group (Dunn et al, 1967). Three experimental reading methods were used: (1) i/t/a; (2) Words in Color; and (3) basal reader (Houghton Mifflin) plus phonics program (Hay-Wingo). Each method was planned for use (1) by itself; (2) with one year of PLDK; and (3) with two years of PLDK; making nine experimental groups. In addition, there was a control group with no experimental procedures nor objectives.

The control group did as well in reading as the experimental groups combined; within the experimental groups the basal reader plus phonics group did slightly better (at the .10 level) than i/t/a or Words in Color, girls did better than boys, and those without PLDK did better than those with PLDK. The mean grade scores for the entire population were: Word Knowledge, 1.6; Word Discrimination, 1.6; Reading, 1.5. These results were by no means outstanding and fell far short of the means of 2.0 in Word Knowledge, 2.3 in Word Discrimination, and 2.0 in Reading reported in the earlier study (Dunn & Mueller, 1966). This second study is to be carried through the third grade and only first-grade results are available at present. However, it is evident that none of the experimental reading methods in the study produced significantly better results than those of the control group using conventional basal readers.

3. Cooperative Studies in the Second Grade

Thirteen of the 27 projects in the U.S.O.E. cooperative first-grade studies of 1964-65 were funded for a second year, and two other projects continued on their own, making a total of 15. Of these, only ten were included in the analysis made by the Coordinating Center at the University of Minnesota. "These particular ten projects were included because they utilized a sample which was considered to be representative of the total population and an experimental program which also was used in another investigation. The establishment of these two criteria eliminated atypical populations such as those comprised of potential disabled readers or Spanish-speaking youngsters as well as projects which included a treatment or program not replicated in another project." (Dykstra, 1967, p. 40) The CRAFT Project was one of the five not included in the Dykstra report. The conclusions arrived at in that report are not based in any way on CRAFT results and do not necessarily apply to the CRAFT population nor to similar populations.

CHAPTER III

SECOND GRADE CONTINUATION PROCEDURES

1. The Schools

The 12 schools in CRAFT 1 were selected on the basis of the following criteria: (1) designation as a Special Service school; (2) minimally 85 per cent non-white population in first grade; (3) a minimum of five and maximum of nine first-grade classes; (4) assurance of full cooperation from the district superintendent and school principal; (5) willingness of four first-grade teachers to take part in the study; and (6) location of the school within the area covered by one of the four reading consultants involved in the study. Of the 12 schools, two were located in the Harlem section of Manhattan, six in the Bedford Stuyvesant section of Brooklyn, and four in the South Jamaica section of Queens.

On the third-grade city-wide reading test given in the spring of 1963, the median scores for these schools in Reading Comprehension ranged from 2.6 to 3.4. Median income in their census tracts ranged from $1,980 to $7,035 per family, with the income for the median school at approximately $3,800. Median education for adults in the school neighborhoods ranged from 8.6 to 11.5 years, with a median at 9.0 years.

Three of the schools received unexpectedly large first-grade populations in September 1964, and had to place their first-grade classes on a four-hour (8 A.M. to 12 Noon) session, so as to accommodate another group of classes in the afternoon. The first-grade statistical analysis had shown the pupils in these schools to be at a disadvantage as compared with pupils in the nine full-session schools, and the final comparisons were therefore made on full-session classes only.

Eleven of the original 12 schools continued in the CRAFT study through CRAFT 2. All of these 11 schools were able to provide full session schedules in the second grade. The one school that dropped out was one of the three that had been on a split-session, four-hour schedule in the first grade. The principal reported that he was unable to enlist second-grade teachers for the study. The distribution of the four teaching methods among the 11 remaining schools is shown in Table 3.1. Seven of the schools had four second-grade classes, two had three classes, and two schools had two classes each. There were 20 Skills-Centered classes and 18 Language-Experience classes, continuing the first-grade teaching methods as follows: 10 BR; 10 PW; 9 LE; and 9 LE-AV. The total number of second-grade classes was 38, as compared to 48 in the first grade.* The perfect symmetry of the first-grade design was somewhat disrupted, but the methods continued to be applied in schools to which they had originally been assigned on a chance basis. It was hoped that any differences among schools would be cancelled out by the facts that each teaching method continued to operate in several schools, and each of the 11 schools had at least one SC class and at least one LE class.

2. The Pupils

In CRAFT 1 the number of pupils completing the pretests was 1,378 and the number also completing the posttests was 1,141, a loss of 17.2 per cent. Further shrinkage of the experimental population by pupils transferring out of CRAFT schools took place during the remaining weeks of the first grade, over the summer, and during the second grade. By the beginning of the second grade the experimental population was about 900. The number of original CRAFT pupils who remained in their classes until the completion of the CRAFT 2 posttests was 656, only 57.5 per cent of the final CRAFT 1 population, and only 47.6 per cent of the population that took the first-grade pretests. However, a significant part of this loss was due to the loss of one school. In the remaining 11 schools, 63.1 per cent of the final CRAFT 1 population remained through the CRAFT 2 posttests. The total losses by school and borough is shown in Table 3.2. The losses from CRAFT 1 posttests to CRAFT 2 posttests are shown in Table 3.3.

As children left the CRAFT classes they were replaced by new entrants. By the completion of the CRAFT 2 posttests fewer than two-thirds (61 per cent) of the pupils in the CRAFT 2 classes were "CRAFT children" (children who had taken the first-grade pretests and posttests). In Table 3.4 one can see that the per cent of CRAFT children was highest (70.8 per cent) for PV, and was considerably above the BR, LE, and LE-AV methods. The high percentage remaining in PV gave the SC Approach a higher percentage (64.5) than the LE Approach (57.1).

Comparison of CRAFT 2 with CRAFT 1 Population

Since 37 per cent of the CRAFT 1 children had left their schools before the CRAFT 2 final testing, it is important to compare the remaining 656* with the original 1,141 to see whether or not the remaining group is a reasonable sample of the original group. The data bearing on this question are shown in Table 3.5, for the CRAFT 1 pretests and posttests.

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*At the beginning of the year there had been 40 experimental second-grade classes. However, two teachers who took leaves early in the year could not be replaced except by temporary substitutes and their classes had to be dropped from the project, leaving 38 classes.

Comparisons were made for the four readiness tests on which scores were available for all classes. On three of the four pretests the differences slightly favored the CRAFT 2 population but were not statistically significant. On the fourth (Murphy-Durrell Learning Rate) there was a significant difference favoring the CRAFT 1 population.

On the posttests there were small differences in favor of the CRAFT 2 population on all five Stanford subtests, but only one difference (Word Study Skills) was statistically significant.

Out of nine comparisons, then, only two differences were statistically significant, and of these one favored the CRAFT 1 population, while the other favored the CRAFT 2 population. Both on pretests and on first-grade posttests, most of the differences were within the range of chance variation.

It seems safe to conclude, therefore, that the 656 CRAFT 2 children were a representative sample of the CRAFT 1 population. Whatever the reasons were for some children remaining and others leaving, the second-grade population does not seem to have been biased toward either more capable or less capable readers. Like the first-grade population, the second graders tended to cluster between the 20th and 25th percentiles on the national norms of the readiness pretests, and their mean achievement was at grade 1.5 on the Stanford Primary I Battery, at a time when average achievement would be 1.8.

CRAFT and Non-CRAFT Children

As CRAFT pupils left their classes during the first and second grades they were usually replaced by new entrants, children recently arrived in the neighborhood. The second-grade classes tended to be slightly smaller than the first-grade classes had been; the mean number per class who took the CRAFT 1 pretests was 28.7, while the mean number per class who took the CRAFT 2 posttests was 25.7.

Data on class size for the two approaches and four methods are shown in Table 3.6. Most classes had between 20 and 30 children; there were two classes with fewer than 20, and three classes with more than 30 pupils. The mean size was lowest for LE, mainly because one class had only eight children present on the day the city-wide reading test was given. The SC classes averaged 2.3 children more per class than the LE classes. Of the 1,006 children who took the

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*The number varied slightly as some children had been present for one test but absent for another.

CRAFT 2 posttests, 656 were CRAFT children. The remaining 350 were "non-CRAFT"; they had entered experimental classes at varying times, but always after the CRAFT 1 pretests had been given. These non-CRAFT children were given the Metropolitan posttests, but were not included in the major statistical analyses.

Data on the distribution of CRAFT and non-CRAFT children who took the CRAFT 2 posttests are given in Table 3.7. Some classes (particularly those formed by consolidating the CRAFT children from two first-grade classes into one second-grade class) had very few non-CRAFT children; others had a majority of non-CRAFT children. The mean number of non-CRAFT children per class was highest (10.4) in the BR Method; lowest (7.9) in the PV Method.

The number of CRAFT 2 classes in which the non-CRAFT children outnumbered the CRAFT children was five, distributed as follows: 1 BR, 0 PV, 1 LE, and 3 LE-AV. The CRAFT children were outnumbered, then, in only 1 of 20 SC classes, but in 4 of 18 LE classes.

Distribution of Boys and Girls

The number of CRAFT 2 boys and girls was nearly equal, whether the comparison is for the total population, for the two approaches, or for each of the four methods. The results are shown in Table 3.8. The classes had been assigned equal numbers of boys and girls at the beginning, and apparently both sexes had approximately equal numbers of transfers. Of the 656 CRAFT 2 children, 331 were boys and 325 were girls. The only method which had a slightly higher number of girls was BR, and like the other comparisons in Table 3.8, the difference was not significant.

3. The Teachers

Selection of Teachers

In CRAFT 1, teacher selection was based in part on willingness to accept either of the methods assigned to her school. In the spring of 1965 some of the principals indicated that if they adhered strictly to this policy, they would not be able to recruit a sufficient number of CRAFT 2 teachers. The project's statistical consultants were asked to advise on this matter, and they decided that it would be better to allow some leeway for teacher preferences than to lose classes. Accordingly, principals were advised to assign teachers to the variables in a chance fashion, but to allow a teacher to choose one of the two methods in that school if she insisted that she would not enter the project otherwise, and if no other qualified teacher was available. In some schools, teacher preference influenced the second-grade assignments to methods; in others it did not.

As in CRAFT 1, principals were asked to try to select teachers who were regularly licensed and who were unlikely to leave the class before the May testing would be completed. They were requested to encourage teachers to participate, but not to use pressure. A representative group of teachers, rather than a superior group of expert teachers, was desired.

In the 11 participating schools, 38 teachers were assigned to the four methods. These teachers varied greatly in age and teaching experience.

Data on age of teachers are shown in Table 3.9. The range in age for the whole group was 21 to 60, and was almost as large in each of the four methods. The two approaches were quite close in both mean age and median age. However, the means for the four methods range from 31.6 to 42.6, and the medians range from 27.0 to 50.5. The BR teachers were the oldest group, followed by LE, PV, and LE-AV.

Educational levels of participating teachers are shown in Table 3.10. The two approaches are seen to be quite evenly balanced, and the differences among the four methods are small. All the teachers had bachelor's degrees, and a majority had taken some graduate work. Seven had master's degrees, and three of these had completed some work beyond the master's degree.

In total years of teaching experience the two approaches were quite comparable; the SC Approach teachers had the higher mean, while in the LE Approach teachers had the higher median. These data are summarized in Table 3.11. However, there were teachers with no prior teaching experience in the BR and LE-AV Methods, and the LE-AV teachers, whose median was only two years of total teaching experience, definitely were the least experienced. The greatest variability in years of experience was in the BR method.

Specific second-grade teaching experience is shown in Table 3.12. It can be seen that the teachers as a total group had relatively little prior experience in teaching second-grade classes, with the means and medians for the four methods all falling between 1.0 and 3.33 years. All four methods had some teachers with no previous second-grade experience. Again the LE-AV teachers were least experienced, with a median of only one year in the second grade. The LE teachers were most experienced, followed in order by the PV teachers and BR teachers.

4. The Program for the Year

Before the school year started there were two workshop sessions, a short one on June 15, 1965 and an all-day session on September 9, 1965, at which all CRAFT 2 teachers were given an overview of the project and separate meetings were held for the four instructional methods. The workshop continued through the experimental period; details will be found in Chapter IV.

The teachers were requested to begin reading instruction on the first day of school (September 13, 1965) and to introduce the special features of their methods as soon as possible. Instruction was to continue for 140 instructional days, after which the posttests would be administered. The posttests were scheduled during the third week of April, 1966 which happened to fall shortly after the Spring vacation.

During the year the planning committee met regularly, usually for a three-hour session once a month. This committee included the director and assistant director, the four reading consultants, the early childhood consultant, and the audio-visual consultant (when available). At these meetings plans were made for coping with special situations that arose from time to time, workshop and supervisory activities were planned and revised, new materials were reviewed and recommended for purchase, and plans for the testing program were made.

The details about the teaching methods and the training and supervisory procedures will be found in Chapter IV. Details about the evaluation program and experimental precautions and controls will be found below.

5. Measurement and Evaluation Procedures

During CRAFT 1 the tests used were those agreed to by the cooperating project directors and set forth in directives from the Coordinating Center at the University of Minnesota. By the fall of the second grade it was evident that there were good reasons why CRAFT 2 should deviate in certain respects from the testing program set for the continuing second-grade projects. The reasons follow:

1. The Stanford Primary I. Battery had shown itself to be very difficult and frustrating for the CRAFT 1 pupils, and it was feared that the Stanford Primary II would be equally disheartening for them.

2. The CRAFT 2 population was sufficiently different from the populations of the other continuing studies that few meaningful comparisons, if any, would be possible even if the same tests were used.

3. It was known that the New York City public schools were planning to give a special machine-scored edition of the Metropolitan Primary II Reading Test to all second-grade classes. This test,

the Metropolitan Advanced Primary, Form C, consisted of the Word Knowledge and Reading subtests of the Metropolitan Primary II. It has special New York City norms, which for the most part are one month more lenient than the national norms.

4. Using the city-wide test would cut down the amount of additional testing necessary.

At a meeting of project directors in Minneapolis in December 1966, these reasons were presented and permission was received to use the Metropolitan instead of the Stanford tests.

The Tests Used

1. As explained above, the two subtests of the Metropolitan Advanced Primary, Form C, were administered with separate answer sheets in all CRAFT 2 classes on the city-wide date. The tests were administered by the school's Corrective Reading Teacher with the classroom teacher assisting; in the rest of the city these tests were administered by each second-grade teacher to her own pupils. The answer sheets were sent to Harcourt, Brace and World Co. for machine scoring. An extra fee was paid in order to obtain raw scores for each pupil.

2. Copies of the Metropolitan Primary II Battery hand-scored edition were obtained and the three remaining subtests (Word Discrimination, Spelling, and Arithmetic) were administered in the same week by the Corrective Reading Teacher with the classroom teacher assisting. These booklets were collected and scored by the project's research staff.

   The Word Knowledge subtest evaluates the pupil's vocabulary words and consists of two parts; one presents a stimulus picture and four words, one of which corresponds to the accompanying picture;the other evaluates the student's ability to select a synonym for a stimulus word presented in an incomplete sentence, with four choices. The Word Discrimination test examines the ability of the testee to correctly identify one of four words read orally by the test administrator. All four choices presented to the student are similar in configuration. The Reading subtest is divided into two parts, one dealing with sentence reading and the other with story reading, both of which are designed to measure elements of comprehension. The Spelling subtest is conventional to the extent that the children write words which the examiner dictates from a spelling list. The Arithmetic subtest includes items related to concepts, problem solving, and computation.

3. The San Diego Inventory of Pupil Attitude was administered as a group test by the Corrective Reading Teacher. After she read each item to them, pubils responded by marking "Yes" or a "No."

4. A group of individual tests was administered to a random sample of four children per class by the reading consultant for that school. These tests were:

    a. The Gilmore Oral Reading Test, Form B. This test was scored for Accuracy (expressed as a grade score) and Rate (in terms of words per minute). Scoring was done by the research staff. Two comprehension questions were asked after each selection, but comprehension was not scored. All timing was done with a stop-watch.

    b. The Gates Word Pronunciation Test. The 40-word list was administered as an untimed test and scored for number right, following directions distributed by the Coordinating Center. Grade norms were obtained from the Manual for the Gates Reading Diagnosis Tests, 1945 Edition.

    c. The Fry List of Phonetically Regular Words was administered and scored following directions distributed by the Coordinating Center.

5. Writing Samples were obtained using the procedure agreed on by the project directors and distributed by the Coordinating Center. An incomplete story prepared by Dr. A. J. Mazurkiewicz was read by the teacher to the class, and the children were asked to write their own endings to the story. This was administered in each class by the classroom teacher. It was scored only for the sample of four children per class who were given the individual tests described above. The Writing Samples were scored, according to directions received from the Coordinating Center, for (1) Mechanics; (2) Number of words spelled correctly; and (3) Number of running words.

6. During one calendar month (February 15 to March 14) each teacher was asked to keep a record of the books read independently by each child. There were 19 school days during this period. Each book read was recorded on a special form, following directions from the Coordinating Center. The reports were totaled for each child and class by the research staff. Separate counts were made for:

    a. Books read completely
    b. Books read partially

7. A Second-Grade Reading Interest Scale distributed by the Coordinating Center was filled out by each teacher (See Appendix). On this form each child was rated for:

   a. Eagerness to read
   b. Maturity of reading choices

8. The Daily Log Form. To check on actual use of instructional time, a Daily Log form was used. Teachers were asked to fill this out for five consecutive teaching days (usually the third week) in each of five months. Most of the teachers supplied the full 25 Logs requested. The mean time per day was obtained for each teacher. The form used in CRAFT 2 was adapted so that it could be read by an IBM 1230 Optical Scanner. The 1230 punched the data into cards, which could then go to the computer. A copy of the Log form will be found in the Appendix.

   The Log resulted in the following scores:

   Total Instructional Time
   Total Reading Time
   Total Supportive Time
   Six Reading activities:
     basal reader activity, experience chart, sight word drill, phonic activity, individualized reading, other reading activities (specify)
   Eleven supportive activities:
     listening to stories, listening to poetry, discussion, writing, dramatization, art work with reading, audio-visual activity, audio-visual with discussion, other language arts (specify), social studies and science.

   The CRAFT 2 teachers were informed at the beginning of the year that variations in instructional time had been found to be important in the CRAFT 1 results, and repeated emphasis was given to the importance of staying close to the recommended time allotment and keeping accurage Logs.

9. CRAFT 2 teachers filled out the San Diego Teacher Inventory of Approaches to the Teaching of Reading test twice, once at the beginning of the academic year and again at the end of the year. These are referred to as the pretests and posttests. There are three scales in the test, Basic, Individualized and Language Experience. Teachers taking the test react to statements concerned with the philosophy exemplified in the various components of reading instruction associated with each of the three scales. Each scale is based on specific items. A high score on the Basic Scale corresponds to agreement with the BR Method, and high scores on the agreement with Individualized or Language Experience Scales relate to an acceptance of the principles associated with those programs. Thus, the

San Diego Inventory includes scales providing for a measure of a teacher's attitude toward the major approaches in this study, although it precludes an estimate of the teacher's opinions relating to the PV and LE-AV Methods. In interpreting the results of the SD Inventory, scores falling within a range of 11-22 indicate disagreement with the factors measured by the scale, 22-33, a tendency to disagree, 33-44, a tendency to agree, and 44-55, agreement.

10. The OScAR R. The Observational Schedule and Record-Reading (OScAR R) was developed by Dr. Donald M. Medley with the assistance of Lou Hicks Smith, specifically for use in the CRAFT Project. The purposes for which it was designed were: (1) to provide an objective record of differences in methods and materials among the instructional methods; (2) to yield information about similarities and differences in the behaviors of teachers assigned to the same method; and (3) to make it possible to find out if these differences are related to pupil achievement in reading.

    The schedule has two parts, "Static" and "Dynamic." The "Static" part is a record of the materials and teaching methods used by the teachers. The "Dynamic" part is a record of the pattern of teacher statements and of the verbal interchanges between teacher and pupils. The categories and procedures were designed to involve only simple, non-evaluative discriminations which could be made by relatively unsophisticated observers after a brief period of training.

    Each observation consisted of three ten-minute periods. During the first three minutes of each period the observer noted the materials used (basal, pupil produced, teacher produced; chart, chalkboard, writing materials, A-V equipment, etc; whether the teacher was working with an individual pupil, a group, or entire class; and what kind of activity she was leading). These items were tallied on the "Static" side of the record card. During the next seven minutes the observer tallied, on the "Dynamic" side, the kinds of teacher statements and teacher responses to pupil statements. A copy of the Instructions for Recording Behavior with OScAR R and the record card used may be found in the Appendix.

    Thirteen scoring scales were developed for OScAR R. Eight of these were based on the "Static" side and were intended to check on the existence of real differences among the teaching methods. The first six of these were labeled "empirical" because they were derived from a fourth ten-minute observation and were based on the observed lessons for the four methods. The first of these empirical scales gave weight to activities stressed more by LE teachers; the second, to activities stressed by SC teachers. The third and fourth scales applied only to LE teachers and highlighted the special features of the LE-AV Method as distinguished from the regular LE Method. The fifth and sixth scales were used only within the SC Approach to distinguish between the BR Method and the PV Method. There were also two "A Priori" scales that were developed by the project director based on his knowledge of what the teachers in the two approaches were supposed to do; one for LE procedures, the other for SC procedures. These two scales were, then, a check on the validity of the Empirical LE and SC scales.

Five scales were based on the "Dynamic" side of OScAR R. The first, "Control," was based on the total number of times the teacher made statements to control pupil behavior. The second, "Positive Motivation," was based on the number of teacher statements intended to praise, increase motivation, reduce tension, or make the child feel better. The third, "Negative Motivation," was based on the number of teacher statements involving correction or criticism of pupil behavior, or in other words which tended to make the pupil feel bad. The fourth, "Total Interchanges," was based on the number of pupil statements to which the teacher made a verbal response. The fifth, "Per Cent of Meaningful Interchanges," differentiated between interchanges concerned with meaning and interchanges in which drill or memorization was involved.

These thirteen scales did not exhaust the possibilities of OScAR R, and there are sections of the record on which additional scales could be based. They are, however, the only OScAR R scales developed and used in the Craft Project.

Statistical Treatment

The statistical operations were designed to be carried out on a relatively small computer, since the IBM 7094 used in CRAFT 1 was no longer available. The major part of the analysis was done on an IBM 1620. Many of the smaller analyses were computed on an Olivetti Programma 101, which proved to be very useful for analyses of variance, for tests of significance, and for correlations based on small numbers of cases.

In general the statistical treatment was similar in its objectives to that used for the first grade, but differed in many details. The method for correcting for differences in initial ability, and the method for separating second-grade results from first-grade results, were adapted from Efroymson (1960).

The sequence of steps was as follows:

1. During the summer of 1966 the coding of CRAFT 2 data was completed and data cards were punched.

2. During the fall many weeks were spent in checking and correcting the data cards. A number of errors were discovered and corrected, some in the coding, others in the punching.

3. Means and standard deviations were obtained for the two approaches and four methods, for boys versus girls, for CRAFT and non-CRAFT children, etc.

4. Class means on the CRAFT 2 Metropolitan subtests were adjusted to eliminate the influence of differences in the readiness of these children at the beginning of the first grade. This involved a sequence of steps:

   a. A correlation matrix of 15 variables was computed. These included:

      1 - 4 The four readiness tests given in October, 1964, and used as pretests in the CRAFT 1 analysis (Murphy-Durrell Learning Rate, Metropolitan Readiness Word Meaning and Listening, Thurstone Pattern Copying).

      5 Number of half-days of kindergarten.

      6 -10 The five subtests of the Stanford Primary I, given as CRAFT 1 posttests in May, 1965.

      11 -15 The five subtests of the Metropolitan Primary II, Form C, given as CRAFT 2 posttests in April, 1966.

   b. From an inspection of these intercorrelations (see Table 5.5) it was decided to use variables 1 - 4 as predictors in multiple correlation equations, with variables 11 - 14 as the Y variables, in four separate equations.

   c. Using these equations, a predicted score was obtained for each child on each of the Metropolitan II subtests.

   d. A mean predicted score was obtained for each class. This was subtracted from the obtained mean. The difference was then applied to the obtained mean to provide an adjusted class mean. Thus, if the obtained class mean was 22.0 and the predicted class mean was 20.0, the difference was +2.0 and the adjusted class mean was 24.0. This procedure was followed for each of the Metropolitan II subtests. It was the equivalent of a multiple covariance procedure.

5. An analysis of variance was carried out for the three reading subtests and the spelling subtest of the Metropolitan using the adjusted class means. In the analysis the two schools that had been on four-hour schedules in the first grade were "nested" to eliminate any possible influence of this factor on the analysis.

6. A similar procedure was followed for obtaining adjusted class means on the individual tests given to a small sample of four children per class, and these were also used in analyses of variance.

7. The five Stanford Primary I scores (the CRAFT 1 posttests) were then used as the pretests in a multiple correlation procedure as described above, to obtain Metropolitan class means adjusted on the basis of CRAFT 1 posttests. This made it possible to eliminate the influence of differences in first-grade reading achievement. It allowed a clearer picture of the results of the instruction in the second grade.

8. The adjusted means obtained in step 7 were used in analyses of variance, similar to step 5.

9. A list of variables that might possibly have influenced the results was drawn up. These included items like teacher age, education, experience, and attendance; neighborhood factors; pupil preschool experience and attendance; the CRAFT 1 test results; the 20 scores based on Teacher Logs; and the 13 scores from the OScAR R observations. These, plus the second-grade posttests, added up to 73 variables. An intercorrelation matrix was computed for this matrix.

10. This matrix was inspected for significant correlations with CRAFT 2 outcome measures, and each of the variables identified in this way was given special study.

The statistical outline given above will be followed in presenting the results of the CRAFT 2 analysis in Chapter V.

The Class or the Pupil as the Statistical Unit

There is a difference in practice concerning the proper unit to use when checking observed differences between treatments for statistical significance. In many research studies on primary reading, the individual pupil has been used as the statistical unit. In other researches the mean for each class is the chosen unit. Whether one uses the individual pupil or the class mean makes a great deal of difference. For example, 10 class means provide nine degrees of freedom, while 200 children in those classes provide 199 degrees of freedom.

Thus the same difference may look highly significant when based on individual pupil scores, but fail to show significance when based on class means.

The statistical consultants for the CRAFT Project strongly recommended that class means, rather than pupil scores, should be used in testing for significant differences. This practice, recommended by Campbell and Stanley (1963, p. 192), has been very clearly explained by Glass and Robbins (1967, p. 11):

> ...when a treatment is applied to a group of subjects, instead of to each subject individually and independently, an appropriate analysis of the experiment uses the means of the groups as raw data. In such instances, the legitimacy of the analysis on the scores of each individual is questionable since it gives the impression of far greater precision in the data than actually exists. The researcher should be guided by the following: the unit of analysis, i.e., the raw data upon which one counts up degrees of freedom must be the same as the experimental unit, i.e., the smallest subdivision of the total group of subjects which is randomly assigned to the experimental condition and which is treated independently of other experimental units for the duration of the experiment. An appreciation of the importance of determining the legitimate experimental unit and having it coincide with the unit of statistical analysis is not widespread in educational research.

In the CRAFT 1 results, differences among teachers within each method were much greater than differences between methods. It seemed important, therefore, to retain the class as the statistical unit in the major analyses of data. This was done except in the CRAFT 3 follow-up, in which classes no longer existed as experimental units.

6. Experimental Precautions

Avoidance of Hawthorne Effect

As in CRAFT 1, an effort was made to avoid giving any group of teachers the idea that they were members of a control group; all four methods were treated as experimental methods. They had similar workshop schedules, and had similar programs of visitation and consultation. As in CRAFT 1, most of the BR and PV teachers had not previously followed a teacher's manual closely and doing so was a relatively new way of teaching for them.

Equality of Provisions for Consultant Services

Of the four methods, three were reasonably well provided for. The fourth method, LE-AV, suffered from interruptions of consultant services. The AV consultant who had been in the project through

CRAFT 1 resigned early in the CRAFT 2 year. There was a gap of several weeks until a capable person filled the role through January. The position was vacant again from the first of February through March, after which a third AV consultant provided a few days of help.

This interruption of AV consultant services was damaging. When AV equipment or supplies failed to reach the classrooms, the AV consultant was usually able to expedite matters; but when there was no AV consultant, such problems tended to remain uncorrected for weeks or months. In addition, some CRAFT 2 LE-AV teachers made relatively little use of the equipment provided because they had not received instruction in its operation and possible uses in teaching reading.

The difficulties in providing AV materials and consultant help were made more serious by the fact, pointed out earlier in this chapter, that the AV teachers were the youngest and least experienced of the four groups. There is good reason to believe, therefore, that the LE-AV method did not receive as good support as the other three methods during CRAFT 2.

Instructional Time

The same instructions about time were used as in the full-session CRAFT 1 classes. All second-grade classes were on full-session schedules, three hours in the morning and two hours after lunch. All teachers were instructed to devote 180 minutes per day to instruction in reading and related supportive activities.

For teachers in the Skills-Centered Approach (BR and PV) the following use of time was requested:

Language Arts - Total	120 minutes	
Reading (3/4)		90 minutes
Other Language Arts (1/4)		30 minutes
Social Studies	30 minutes	
Science and Health	30 minutes	
Total	180 minutes	

The LE and LE-AV teachers were asked to devote the same total minutes to the combination of Language Arts, Social Studies, and Science. Since integration and mutual reinforcement of the language arts (listening, speaking, reading and writing) was a basic concept of the LE Approach, the balance of time between reading and the other language arts was left flexible, and Social Studies and Science were not tallied separately.

The OScAR R

The OScAR R (Observation Schedule and Record-Reading) is an objective way of recording teacher behavior described above in section 5. It had been used in the CRAFT 1 classes.

Each CRAFT 2 teacher was recorded on OScAR R four times, twice by each of two research assistants. There were fewer complaints about this procedure than in CRAFT 1 (where each teacher had been observed eight times, and complaints were many), but several teachers reported that being observed in this way made them feel uncomfortable. They were particularly annoyed that they received no feedback from the observers.

Effect of Teacher Familiarity with Method

As in CRAFT 1, there was probably some inequality in the degree of familiarity with the assigned method. The BR Method was least different from previous practices. The PV Method involved an unfamiliar method of teaching word recognition skills, but one provided with specific directions in a manual, and specific materials. The LE Method used small group and individualized reading procedures in second grade, relatively uncommon at that grade level. The LE-AV Method was probably least familiar. Whether experience in using these methods makes much of a difference has been investigated in Replication 1 and 2.

CHAPTER IV

METHODS OF INSTRUCTION IN THE SECOND GRADE

1. Description of Teaching Methods

Contrast of Approaches

The SC Approach, as used in the CRAFT Project, represents an orderly and systematic approach in which the many skills and subskills involved in the reading process are presented to pupils in a carefully planned sequence. In this study the SC Approach incorporated the Basal Reader Method (BR) and the Phonovisual Method (PV). An essential element is the provision of a detailed teacher's manual or guide which provides a step by step sequence of teaching activities to be followed. An important characteristic of skill-centered programs is that ample provision is made for review and repetition. In the reading materials there is careful vocabulary control and new words are introduced in a predetermined sequence.

The LE Approach attempts to utilize the experiences of children as a basis for instruction in the various components of the language arts. Implicit in this approach is the concept that children enter school with a wide range of experiences which may be utilized for the development of an integrated instructional program which includes oral communication, reading, writing, and composition. Daily experiences in school and at home, as well as those obtained vicariously, through filmstrips, recordings, or story-telling activities, may also serve as reference points for establishing an integrated approach to the development of language arts skills.

The LE Approach in this study incorporated the Language-Experience Method (LE) and the Language Experience Audio-Visual Method (LE-AV).

Basal Reader Method

The instructional plans set forth in the manuals of the basal readers used in this project are quite similar, although there are variations in terminology. There are, in general, four major divisions to the plan, and these are repeated with minor changes in the teaching of story after story. The four divisions are: (1) preparation; (2) guided reading and rereading, silent and oral; (3) developing specific reading skills; and (4) enrichment.

Preparation. Preparation for a new story involves three steps. The first is motivation and arousal of interest. The second is the introduction and explanation of new concepts, ideas, and meanings. The third is oral and visual presentation and preteaching of the new words in the story. The words are presented on the chalkboard, sometimes in sentences, sometimes in isolation. They are usually taught by a "look and say" procedure, although sometimes children are encouraged to apply word recognition skills previously taught.

Guided Reading and Rereading. Before silent reading is started there is usually a brief discussion of the title of the story and the first illustration in it. The teacher asks a question or two and the children read silently to find the answer. At second grade the amount read is often about a page. Discussion of the guiding question and of other questions follows the silent reading. Oral reading usually follows, for a variety of purposes: to clear up a disputed point, to find out how the characters feel, to find happy or sad parts, to prepare to draw an illustration, to make it sound as if the characters are really speaking, to prepare a dramatization of the story, etc. Often the selection is reread more than once.

Developing Specific Reading Skills. Following the oral and silent reading the manual presents directions for the development of a variety of reading skills: word recognition practice, phonics, structural analysis, combining various skills in attacking words, various comprehension skills, etc. The plans in this section provide for direct teaching of new skills and for reinforcement through use of the workbook.

Enrichment. Many more enrichment ideas are usually provided than the teacher can find time to use. Language practice can include jingles and rhymes intended to improve clarity of speech. Suggestions are made concerning stories which the teacher can read to the children, related songs and poems, dramatization, related art work and books and stories for independent reading by the children.

The CRAFT 2 classes which used this method had available basal readers at different grade levels (pre-primers, and 1^2, 2^1, 2^2, readers), workbooks which accompany these readers, cards which present words and phrases used in the stories, and the teacher's manual for each of the readers.

No attempt was made to use a single basal series in all the BR method classes which comprised the CRAFT 2 study. Rather, the readers used were those normally available to second grade teachers in the CRAFT schools. The basal programs available were predominantly the Scott, Foresman Basic Readers; Ginn Basic Readers and the Harper & Row Alice and Jerry Books were also used in some classes. Several classes used the multi-ethnic edition of the Scott, Foresman Basic Readers in CRAFT 2 after having used the regular edition in CRAFT 1.

Although the BR Method was perhaps the most familiar to CRAFT 2 teachers, relatively few of them had fully utilized the procedures specified in the teacher's manual. An important objective of the training program for the BR teachers was to have them adhere closely to the manual in their instructional procedures.

All of the teachers in the BR Method introduced the instructional program to the children on a group basis, rather than to the whole class. Most often, the children were divided into two groups; some teachers used a three group system.

A recurring problem which the teachers faced, and which was prevalent in the other second-grade classes in CRAFT schools, was providing meaningful seatwork for pupils in the "slow" group while the teacher worked with the "fast" group. At the second-grade level, pupils in the slower group may range from almost non-readers to those reading at the 1^1 level. The number of books available at this level which may be read independently is limited. Consequently unless the teacher was quite enterprising in providing alternate activities, this group might sit and simply observe the lesson being taught by the teacher to the other group.

One of the objectives of the workshop for BR teachers was to avoid neglect of the parts of the manual lesson plans that follow silent and oral reading. During the workshop sessions with BR teachers the workshop leader provided many suggestions for follow-up activities. Each of the reading consultants attempted to strengthen this aspect of the BR Method during her frequent visitations to the classroom.

The extent to which this general BR plan was utilized in each of the CRAFT classes varied, as one might expect, from teacher to teacher. Nevertheless, it was generally observed by the assistant project director, who visited each of the classes on a periodic basis, that all the teachers tended to follow this plan more and more as the study progressed.

Phonovisual Method

The PV Method provides a highly structured phonics program. The manual (The Phonovisual Method, by Schoolfield and Timberlake) which described this program suggests that the intensive teaching of phonics begin, if possible, the very first day of the first grade. The program is intended to supplement other reading instruction, and is readily combined with the use of basal readers.

In CRAFT 2 the Phonovisual materials and procedures replaced only one phase of the BR Method. Instead of teaching phonics and structural analysis as suggested in the basal reader teacher's manuals, the Phonovisual program was used to teach these skills. In all other respects, the PV Method was similar to the BR Method. Both used basal readers normally available at the second-grade level, and implemented the various phases of the typical basal reader program, except that in the PV Method its own unique phonics approach was utilized.

The first-grade Phonovisual instructional program includes two wall charts (one for consonants and one for vowels), two workbooks (one for consonants and one for vowels), a teacher's manual, and a "game book" with suggestions for varying the reinforcement activities. In addition, the program provides an assortment of supplementary aids, such as individual pupil copies of the consonant and vowel charts, "skill builders" (small cards each duplicating one phonic element contained on the wall charts), and "flipstrips" (cards which may be folded to expose either the stimulus picture or its corresponding grapheme).

The Phonovisual consonant chart contains twenty-six stimulus pictures in association with phonic elements. For example, there is a picture of a pig, next to which is, p__; a picture of a wheel, next to which is, wh__. Of the twenty-six phonic elements presented on the chart, nineteen are single consonants, six are consonant digraphs, and one is a consonant vowel combination (qu).

The Phonovisual vowel chart presents seventeen phonic elements, also in association with stimulus pictures. Ten of these phonic elements consist of the long and short vowels. The remaining seven include vowel diphthongs (ow, oy); modified vowel sounds (aw, ur, ar); and two sounds of the digraph oo.

The instructional procedures are exactly specified. The Phonovisual consonant chart is mastered first, one consonant at a time. After initial teaching of the phonic elements, intensive reinforcement activities are provided, mostly in the form of games and through the use of the various supplementary materials which are provided for each pupil (the workbooks, skill-builders, and flipstrips).

Writing is initiated as soon as the children have shown ability to identify the first five consonant elements on the chart (p, wh, f, th, t). The writing activity consists of the teacher saying the one-syllable stimulus word, such as pig, while the pupils are taught to write first the initial consonant (p__) and at a later stage, the consonants in their initial and final position (p_g). Many different words are used to develop in the children the facility to write the initial and final consonants, leaving blanks for the vowels. The sounds are identified by the picture cue; for example, p is called "the pig sound."

The Phonovisual vowel chart is not introduced until there is group mastery of ability to identify all the consonant elements. The lone e sound (ee) is introduced first, followed by the short a sound. Considerable emphasis is then given to the teaching of initial blends in association with these vowels. The remaining short and long vowels are introduced in a specified sequence, followed by the other vowel elements on the chart.

The Phonovisual program for the second grade and beyond includes the teaching of syllables, compound words, secondary spellings, "sound" words, and prefixes and suffixes. Instruction in these areas is not recommended by the authors of the method unless the children have mastered all of the techniques prescribed for the first grade. Indeed, second-grade teachers are cautioned to reteach the entire first-grade program when elements of that program are not known by the students.

Comparison Between BR Method and PV Method

Reference has already been made in the beginning of this chapter to the common elements which both the BR and PV Methods share. These common elements are of sufficient significance as to warrant considering both methods as variation of a SC Approach.

In CRAFT 2, both methods utilized typical instructional procedures recommended for use with basal readers. The PV Method discarded only the phonics and structural analysis phase of instruction, including the use of the correlated basal reader workbooks and substituted instead the Phonovisual system of phonics, including its workbooks. Since this system is highly structured, and comes complete with a manual and instructional aids, there was a distinct tendency to emphasize phonics skills in classes using the PV Method more than in those using the BR Method.

Classes using the BR Method used a two, or three group system for reading instruction, including the teaching of phonics. Teachers using the PV Method, however, tended to utilize grouping only for those activities which involved the use of the basal readers, and taught the phonics lesson on a whole class basis.

Since a relatively large proportion of instructional time was needed in order to cover the Phonovisual program, it was not feasible for the teacher to make several presentations, which the grouping system would have required. The obvious result of this whole class approach to the teaching of phonics in the PV Method was that less consideration could be given to individual differences in learning ability.

All children participated in the Phonovisual program at the same time. For some, the reinforcement activities may have provided too much repetition, while for others, too little. In the BR Method, where grouping prevailed, the teacher could modify the rate of introduction of the phonics program, depending on the level of the basal reader used and the learning rate of the group.

The consonant and vowel charts used in the PV Method were placed on the walls of the classroom and constantly exposed to the pupils. They provided a readily available guide to the pronunciation of the key phonic elements. Pupils could make use of these charts throughout the day, for example, during the reading of science and social studies texts which frequently took place in the afternoon. The pupils in the BR Method did not have exposure throughout the day to any similar type of reading aid.

Lastly, it should be noted that the BR Method, as suggested in the teacher's manuals, tends to introduce word attack skills on a relatively gradual basis so that a considerable portion of the phonics program is not introduced until grades two and three. In the PV Method, all the phonic elements are usually introduced in grade one; in grade two, previously taught skills are reviewed, and any which were not covered in first grade are introduced. In CRAFT 2 PV classes, some teachers reviewed both charts on a systematic basis, while others emphasized only the vowel chart, referring to the consonant chart as needed.

Language Experience Method

The LE Method in CRAFT 2 placed considerable emphasis on pupil-teacher interaction in order to stimulate oral communication, which in turn served as the basis for the development of experience charts. Since basal readers were not used as a vehicle for instruction, it was necessary for the teacher to develop material for use during the reading period. Charts were reproduced as booklets in large type.

The implementation of the LE Method required a great deal of teacher initiative. Themes for the experience charts had to be sought quite diligently to maintain the interest of second-grade children. Experiences which provided themes for charts included trips, school assemblies, current events of interest to children, science (weather, animals, plants), interesting events at home, social studies (elections, holidays, famous men), and unusual situations which frequently occur in a city as large as New York.

The teachers using the LE Method in CRAFT 2 experienced as much difficulty in initiating the program as did teachers in the first-grade study. The contrast with the basal reader program, which the teachers had studied or used, was marked. The LE Method was utilized on a whole class or individual basis; the basal program was usually applied with children in small groups. The LE Method depended on oral communication for the development of reading materials; the basal program progressed through readers. The LE Method sought to integrate Social Studies and Science with the language arts, all of which was taught through the LE procedures; the basal program was used primarily to teach reading and related language arts skills.

Skills instruction in the LE Method was based on the frequency of oral and written use of phonic elements by the children. There was no prescribed sequence of skills. In answer to the expressed need of the teachers, however, a skills workbook was selected (Basic Goals in Spelling, Book I, by Kottmeyer and Ware, second edition. St. Louis: Webster Publishing Co.) and was continued into Book II. Pages were introduced as the need for phonic elements was felt in both reading and writing, which were taught concomitantly.

The first objective of the method was to stimulate discussion. The children's verbalizations were written down and used for the development of word analysis and comprehension skills. Listening, speaking, writing, and reading were taught in an integrated attack on the language arts.

The LE Method in CRAFT 2 placed more emphasis on individualized reading than did the program in CRAFT 1, which did, however, start to introduce trade books toward the middle of the year. Typically, transition to individualized reading was made by small groups of children as they achieved enough proficiency in word analysis to read independently. Stories in the first books of a variety of co-basal literature series were used for effecting this transition. In addition, individualized reading was triggered by a series of experience charts on a particular theme of interest to a group of children, who were then led to trade books on this theme. All these classes had substantial libraries containing at least 50 separate titles as well as duplications, provided by CRAFT. In addition, school libraries facilities were used liberally and effectively.

In summary, it may be said that the LE Method stressed oral communication for the development of experience charts. Individualized reading was increasingly stressed. A spelling workbook was available and was used, but not emphasized. Subject matter from Science and Social Studies was also taught through experience charts; separate texts in these areas were not used on a whole class basis.

Language-Experience Audio-Visual Method

The LE-AV Method was substantially similar to the LE Method in orientation, instructional procedure, and use of instructional material. Both methods initiated experience charts through oral discussion, provided for follow-up reading on an individualized basis, and utilized a workbook on a selective basis for spelling and phonics skills.

They differed in one essential respect: the LE-AV Method introduced a variety of audio-visual aids to supply vicarious experiences that would otherwise not have been available to the class.

The audio-visual aids available to the teachers in this method included the overhead projector, filmstrip projector, tape recorder, record player, Polaroid camera, and the Phono-Viewer (an integrated filmstrip and record player, made by General Electric).

It should be emphasized that not all the LE-AV claasrooms had all this equipment for the full year. In fact, a serious limitation in the implementation of this method in CRAFT 2 was the failure of the Bureau of Audio-Visual Instruction to provide full equipment at the beginning of the year and to maintain it in working order throughout the year. Furthermore, although plans and budgetary provisions had been made to utilize the half-time services of an audio-visual consultant from the Board of Education of the City of New York, it was necessary to make two replacements in this position during the course of the year, and for several months no A-V consultant was available at all.

The audio-visual aids were used to: (1) provide vicarious experiences (records, filmstrips); (2) teach various skills (overhead projector), and (3) encourage oral communication (tape recorder). Only minimum use was made of the Polaroid camera and the Phono-Viewer in CRAFT 2, the former because of difficulty in obtaining film when needed, the latter because of frequent malfunctions in the instrument. Another reason for the relatively infrequent use of the camera was the disinclination of the second-grade teachers to take field trips, where it was most likely to be used.

The most popular audio-visual instrument was the overhead projector. It was used to write experience stories, teach selected phonics and spelling skills, and encourage pupil writing. Through the use of this instrument the teacher was readily able to focus the attention of the class on the instructional activity. This instrument can effectively replace the chalkboard for many activities.

The filmstrip projector was perhaps the next most popular instrument. Filmstrips by Weston Wood, Eye Gate, and the Society for Visual Instruction were available. Some of the filmstrips came with phonograph records and provided an integrated audio-visual experience for the pupils.

The phonograph was placed in a listening corner, and through the use of an earphone connecting box as many as six children could listen to a record at the same time without disturbing the rest of the class. The use of the record player tended to encourage grouping procedures for instruction. For example, if the teacher was reviewing a particular reading skill, those who did not need this review could listen to a record.

The tape recorder was generally used by one pupil at a time or by small groups. The instrument was used by the pupils for recording an experience or a story, listening to a prerecorded story, and developing oral-aural ability. Listening to one's own recording was used by some teachers as an effective method of improving clarity and correctness of speech.

Concluding Comments

The basic distinctions between the two approaches (SC and LE) and the two methods in each approach (BR and PV; LE and LE-AV) may now be summarized.

The two approaches differed to the extent to which skills programming, vocabulary control, and story content were employed. The SC Approach followed a program based on a structured sequence of skills, a vocabulary controlled on the basis of high service words, and the story content developed by the authors of basal readers. In the LE Approach skills were taught functionally rather than systematically, vocabulary control was minimized, and story content was selected by the children.

The distinction between methods was less critical than that between approaches, but was nevertheless clearly identifiable. The BR Method provided a phonics program which was introduced gradually during the first and second grades. Also, instruction was generally offered on a group basis. The PV Method introduced the significant phonic elements during the first year and reviewed them in the second grade. A considerable portion of the time spent in reading instruction in the PV Method was devoted to teaching phonics on a whole-class basis.

The LE Method stressed oral communication which culminated in the development of experience charts and booklets. The LE-AV Method utilized the same techniques, but utilized various audio-visual aids to supplement the usual language experience procedures.

It should be noted that the SC teachers were encouraged to follow the New York City curriculum in teaching other aspects of the Language Arts, Social Studies, and Science. As has been explained in Chapter II, they were asked to spend three-fifths or 180 minutes of the school day on reading and supportive activities, allocated as follows:

Erratum. The time allctments given at the bottom of the page are incorrect. The correct allotments are shown on page 40.

Other language arts included show-and-tell and other discussion activities, penmanship, spelling, and composition. Science and Social Studies in second grade are generally taught in New York City public schools in an informal way centered around activities and projects, with outcomes summarized in experience charts. Textbooks are not used systematically in these subjects, but are employed as references on specific topics.

There was, then, greater similarity between the SC and LE Approaches in supportive activities than in reading activities. However, the LE teachers tended to place more emphasis on supportive activities, and to spend more time on them.

2. Teacher Training Program

To insure maximum adherence to the particular method assigned to each teacher, CRAFT 2 utilized preservice and inservice workshop sessions, supervision by district reading consultants, and overall supervision by the assistant director.

Preservice and Inservice Workshops

A first meeting of the CRAFT 2 teachers was held on June 15, 1965. Prior to the opening of school in September, all CRAFT 2 teachers met at a central location in Manhattan for the first workshop session of the academic year. This workshop was held from 9:00 a.m. to 3:00 p.m. on September 9, 1965. A subsequent central workshop session was held on January 17, 1966, from 4:00 p.m. to 5:30 p.m. In addition to these central meetings, monthly district meetings were held throughout the year.

Four reading consultants, an early childhood consultant, and theoretically an audio-visual consultant, all of whom held full-time positions with the Board of Education of the City of New York, spent a substantial portion of their time in CRAFT 2. Each of the reading consultants was designated as a specialist and workshop leader for a particular CRAFT method. It was the consultant's responsibility to become thoroughly familiar with the teaching procedures of the method for which she was responsible, and prepare instructional bulletins for dissemination at the central workshop meetings. The consultants served as leaders when the workshop meetings divided into four sub-groups, one for each of the CRAFT methods. Part of each central meeting was used for explanation of the project as a whole and of specific procedures common to all methods, such as the Teacher Logs and the testing program. Part was spent in separate meetings for the four teaching methods, so that all teachers in the same method could share problems and solutions.

District meetings were held monthly, and these were organized and led by the reading consultants. Often the monthly workshop sessions for specific methods were held on different days so that teachers of a particular method could come together to share common experiences and receive additional guidance in the application of the appropriate teaching techniques.

Supervision by District Consultants

The four reading consultants, the audio-visual consultant (when available) and an early childhood consultant met monthly with the project director and assistant director in order to coordinate the training programs and the supervision of the CRAFT teachers. These meetings tended to last several hours.

Each of the consultants developed and distributed instructional bulletins. All the consultants had sufficient familiarity with each of the four methods to be able to assume supervisory responsibility with the CRAFT teachers in her district. In effect, each consultant became a specialist in a single method and (well-versed) in all four methods. This made it possible for each consultant to concentrate on schools in a particular district, and provide assistance for all CRAFT teachers in these schools, which included all four methods.

The reading consultant visited the CRAFT 2 classes in her district several times a month; the audio-visual consultant was to visit only the classes using the A-V method. Discussions of these visitations were held at the monthly meetings of consultants with the project director and assistant director, and provided a continuing source of feedback on the progress of the study.

Supervision by the Assistant Director

The assistant director was able to make periodic visits to each of the CRAFT 2 teachers. This usually involved spending a full day at each of the 11 CRAFT 2 schools. The assistant director would observe the teachers in the morning, and usually meet with them for lunch. Occasionally, the principals of the school and the district reading consultant also joined the luncheon meeting. Frank discussions were held on the problems and successes which the teachers had encountered.

The observations made by the assistant director were presented and discussed at the monthly consultant's meetings. These discussions served to unify the instructional procedures applied to each of the methods throughout the CRAFT 2 schools. This was an important consideration, since the assistant director alone was in a position to visit all the CRAFT 2 classes.

3. The Role of the School Principal

Without the active support of the principals the project could not have succeeded. The principals and their assistant principals helped in a variety of ways.

1. The principals moved the first-grade CRAFT classes into the second grade with the least possible alterations. Classes were maintained as nearly intact as possible. When new second-grade children registered, they were assigned to CRAFT and non-CRAFT classes on a random basis.

2. The principals set up and maintained a record-keeping system for transfers so that pupils who left the CRAFT classes could be traced later to their new schools.

3. The principals were responsible for the distribution to CRAFT teachers of many shipments of A-V equipment, supplies, and reading materials.

4. The principals gave active support to the CRAFT project in their discussions with the CRAFT teachers and other teachers, thus contributing immeasureably to the maintenance of morale among the CRAFT teachers.

5. The principals took the initiative to report to the central research staff any problems that arose in the operation of the project in their schools. In this way numerous minor emergencies were effectively and promptly handled.

6. The principals volunteered to plan the details of the testing schedules in their schools, and temporarily relieved the Corrective Reading teachers of other duties so that they could administer the group posttests in the CRAFT classes.

7. The principals accepted and respected the use of heterogeneous grouping in CRAFT classes, although most of the other classes in their schools were grouped on a relatively homogeneous basis.

8. The principals received and read voluminous mimeographed communications from the CRAFT central staff. These included minutes of the central meetings and copies of all materials sent to the CRAFT teachers.

9. Many principals had to exercise ingenuity in order to supply all the materials required by the nature of the project. In some schools, for example, basal reader workbooks were not customarily used and had to be obtained out of special funds.

10. Special meetings were held at the Board of Education for the principals and the assistant superintendents in charge of the CRAFT schools. Attendance at these meetings was very good, despite very busy schedules. One important function

of these meetings was to clarify and correct misunderstandings that arose about the project, and to indicate clearly what the research budget could provide and what would have to be supplied by the schools. Another function was to provide for the airing of grievances. A third was to provide group thinking of experienced administrators on the solution of operational problems that cropped up from time to time. A fourth was to inform the principals about results and to give them an opportunity to discuss the published project reports.

CHAPTER V

SECOND GRADE CONTINUATION RESULTS

1. CRAFT and Non-CRAFT Children

As mentioned in Chapter III, 656 CRAFT 1 children in 38 classes participated in the testing program at the conclusion of the second grade. These figures indicate that an average of 17 children who participated in CRAFT 1 remained in CRAFT classes through the continuing year. Because class enrollment averaged 26 students, the remaining pupils entering CRAFT classes after the study began were designated as non-CRAFT pupils. The presence of CRAFT and non-CRAFT students in the same classes raises the question of whether the latter group had a differential effect on the instructional results.

Unfortunately a comparison of the learning potential of the two groups was impossible to make, since New York public school regulations forbid the administration of mental ability tests, and readiness scores were not available for the non-CRAFT pupils. However, as reported in Chapter III,CRAFT 2 students did not differ substantially from CRAFT 1 children when compared on the basis of their respective first grade pretest and posttest scores. And, since observable characteristics of children transferring into CRAFT schools did not appear to be different from those of children who had left the study, it was also hypothesized that non-CRAFT students did not differ in learning ability from those CRAFT children whom they replaced. This supposition appears to be justified when a comparison of the two groups of students is made.

The differences in unadjusted mean scores for children participating in each of the four methods are presented in Table 5.1. This table indicates that although CRAFT 2 pupils had higher mean scores than non-CRAFT pupils on all subtests of the Metropolitan Achievement Tests, in only four of the 20 comparisons were the differences significant. All four of these significant differences favored CRAFT children in the Phonovisual classes. Why this difference exists is not exactly known. The most probable explanation is that non-CRAFT children in the PV Method may have done less well than their CRAFT counterparts because significantly fewer of them transferred into CRAFT classes than in any other method, and adequate instructional adjustments may not have been made to insure that entering students were given the equivalent of first-year training in the Phonovisual method.

When the raw scores are converted into grade equivalent scores (Table 5.2) it can be seen that, as expected, CRAFT students in Phonovisual classes had a greater advantage over their non-CRAFT classmates than did CRAFT children taught by other methods. The difference favoring CRAFT students in the Phonovisual method was five months on the Word Discrimination test, four months on the Word Knowledge and Spelling test, and three months on the Reading test.

CRAFT students in classes taught by the other three methods also had higher grade equivalent scores than did non-CRAFT children on all subtests except one (where both groups of children taught by the LE-AV Method obtained the same score -- 2.2 -- on the reading subtest). The difference in grade equivalent scores between the two groups averages out to .35 on the Word Discrimination test, .25 on Word Knowledge, .28 on Spelling, and .15 on Reading. Although the differences favoring the CRAFT pupils in the three methods are not individually significant, the consistency of the trend is notable.

The grade equivalent means for the MAT Arithmetic test are also reported in Table 5.1, and reveal that children taught by the four methods, as well as children separated into CRAFT and non-CRAFT categories, achieved at approximately the same level. This finding would appear to indicate that the teaching of arithmetic was not only consistent within the four sets of classes but also for CRAFT and non-CRAFT students. This minimizes the possibility that the teaching of arithmetic for any one group of students had a differential effect on reading achievement scores, or that arithmetic was differentially slighted in any CRAFT method.

With regard to differentiating effects it should also be noted that children identified as "early readers" in the study, children who had kindergarten experience, and the numbers of boys and girls, were about equally divided in the approaches by which they were taught, thereby minimizing the possibility that these factors may have influenced the achievement results in a particular approach. Analyses of the achievement made by these sub-groups are included in a later section of this chapter.

2. Results for the Total CRAFT 2 Population

The second grade classes were all given the five subtests of the Metropolitan Primary II Battery, Form C, (MAT) during the third week of April, 1966, as described in Chapter III.

Unadjusted Results

The raw score means for the SC and LE Approaches are shown in Table 5.3. The SC means were slightly higher on all subtests than the means for classes taught by the LE Approach. The differences in mean raw scores did not exceed 2.22, this being the disparity on the Spelling subtest, and averaged only 1.69 on the three Reading subtests. None of these differences was statistically significant. When the mean scores are converted into grade equivalent scores the absence of significant differences between the approaches becomes more apparent.(Table 5.4). When New York City norms are used for comparison purposes on the three reading subtests, there is no grade equivalent difference on Reading, one month on Word Knowledge, and two months on Word Discrimination. Identical differential results are obtained when national norms are used. A comparison of the two sets of norms indicates very minimal differences between them, and at no time is the discrepancy greater than one month.

Since the unadjusted scores favored the SC Approach classes on all subtests, it is not surprising that when methods are compared (Table 5.3), children in the BR and PV Methods ranked either first or second on each of the Reading subtests and on Spelling. The BR Method had slightly higher scores on Word Knowledge and Spelling and the PV Method on Word Discrimination and Reading. The LE-AV Method scored lowest on all three reading subtests, but slightly higher than the LE Method on Spelling. There was no significant difference on any of these comparisons according to t tests.

When the unadjusted mean raw scores for methods are converted into grade equivalents, there is little in the way of differences between methods. The greatest difference between any of the methods is two months, and the range of grade equivalent scores extend from 2.2 and 2.6. This is somewhat below the norm of 2.7 for April testing.

A breakdown of unadjusted scores was also made by classes within methods in an effort to determine the extent of differences among classes utilizing the same method. Using the MAT reading subtest as an example, wide variations can be noted, especially in the BR Method where the range in class means was two years, three months(Fig. 2). These differences were dramatic, considering the random assignment of children to classes. The wide range for the BR classes is attributable mainly to the superior scores attained by children in one class, whose mean grade equivalent on the three Reading subtests averaged 3.8 on New York City norms. Reasons for the superiority of this class are not precisely known.

Although the differences for the classes using the other three methods were not as great as for BR, neither were they minimal. When scores for the three Reading subtests are averaged, the grade equivalent range is eight months for PV, one year for LE, and seven months for LE-AV. Thus the range in class means within each of the methods is far greater than the difference between any two methods.

Adjusted Means

As described in Chapter III, raw score means were adjusted by both first-grade pretests and first-grade posttests. Adjusted scores in the former instance were used to equalize differences in learning potential evidenced by the CRAFT pupils early in the first grade, and in the latter instance to offset instructional advantages obtained during the first year of the study. The intercorrelation matrix for pretests and posttests is shown in Table 5.5. The multiple regression equations are shown in Tables 5.6 and 5.7.

The intercorrelations of the pretests, the first-grade posttest scores, and the second grade MAT posttest scores, are shown in Table 5.5. With the exception of some of the r's involving kindergarten experience, all of the r's in this table are significant at the .01 level. It was decided to use kindergarten experience and the four pretests (Variables 1-5) as predictor variables in multiple regression equations. The resulting equations are shown in Table 5.6. From the predicted scores, adjusted class means and adjusted means for approaches and methods were obtained, as described in Chapter III.

When the means were adjusted by either pretests or posttests the outcomes were not substantially different from results reported for the unadjusted scores (Tables 5.8 and 5.9). When adjusted mean scores by approaches were compared, the SC classes achieved at a higher level than the LE classes on all four subtests.* The mean differences between the two approaches were somewhat greater for adjusted scores than when a similar comparison was made for unadjusted scores, but do not reach statistical significance.

When means adjusted by pretests were compared by method, BR and PV means were higher than the means for the LE and LE-AV Methods on all subtests, with the BR Method highest on Word Knowledge and Spelling, and the PV Method best on Word Discrimination and Reading. Conversely, LE classes did least well on subtests where the Basal Method is superior, and the LE-AV classes did least well on subtests where the achievement scores for the Phonovisual classes were highest. One of these latter differences, favoring PV over LE-AV on Word Discrimination, is significant at the .05 level (Table 5.12). The other inter method differences are not significant.

Comparison of means for methods adjusted on the basis of first-grade posttests reveals slightly smaller differences than when means adjusted by pretests were compared. Despite this diminution in differences, there is still a significant difference between PV and LE-AV favoring the former at the .05 level of significance, on Word Discrimination.

Grade equivalent scores also reveal the relative superiority for the SC Approach and its component methods. Comparing Approaches on the pretest adjustment (Table 5.10), there is a four month difference favoring the SC Approach over the LE Approach on Word Discrimination, two months on both Word Knowledge and Reading, and three months on Spelling. Similar differences are found on the basis of posttest adjustments (see Table 5.11).

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*Arithmetic scores were not adjusted

The range of grade equivalent scores based on raw scores and adjusted scores are shown in Tables 5.13 and 5.14.

The differences among the class means adjusted by pretests were far greater within each of the four methods than any of the differences between methods. The greatest range was in the BR Method, and was again due to extremely high adjusted means for one class, which not only had the highest unadjusted means but also benefited from the adjustment. Similar large differences within methods were found when the means were adjusted by first-grade posttests. While the general result of the posttest adjustments (Table 5.15) was to lower the means for the method that had done best in first grade (BR) and to raise somewhat the means for the method with the poorest first-grade results (LE), the range of class means within each method remained large and far exceeded differences between the means for methods.

Using the MAT Reading subtest, the spread of class means is shown in Figure 2, for unadjusted means and for both adjustments. Here it can be noted that a variation of from one year to several years exists when the means of the highest and lowest achieving classes are compared. Because of these variations within methods, only two of the t tests between methods showed significance, and in each comparison PV was significantly higher than LE-AV in Word Discrimination (Table 5.12).

Analysis of Variance for the MAT Subtests

For CRAFT 2 the analyses of variance were conducted in a series of steps for each of the posttests. The steps may be illustrated by considering the analyses for the MAT Word Discrimination subtest, on which differences between approaches and methods were slightly larger than on the other MAT subtests.

First a one-way analysis was done testing variance between approaches against variance within approaches; the resulting F ratio was not significant (Table 5.16). Secondly, variance between schools and between approaches within schools was tested against variance within approaches and schools, keeping the two schools which had had split-session schedules in the first grade separate from the nine schools with full-session first-grade schedules; again the differences were not significant (Table 5.17). Each SC method was then compared with each LE method, keeping the split-session schools separate, again with no significant differences (Table 5.18). Because split session had made a significant difference in the first-grade results, the differences between approaches, between schools, and between methods were computed again, this time leaving out the split-session schools; again no significant differences were found (Tables 5.19, 5.20 and 5.21).

Similar analyses, carried out for the MAT Word Knowledge, Reading, and Spelling subtests adjusted for pretests, failed to reveal a single significant difference between approaches or between methods.

The same methods of analysis were carried out also for the MAT subtests adjusted on the basis of the first-grade posttests. Again, not a single difference between approaches, between schools, or between methods was large enough to be significant at the .05 level. In all of these analyses the differences between approaches and methods were reduced to insignificance by the much larger differences within approaches and methods.*

Results for Reading Interest Measures

Apart from the results achieved by the experimental population on the MAT, efforts were also made to assess the amount of reading done by the CRAFT 2 children, and to determine the degree of their eagerness to read and the maturity of their reading choices.

These findings are summarized in Table 5.22. They reveal a somewhat uneven pattern inasmuch as LE classes completed more books and indicated slightly more eagerness to read than other classes, PV classes read more books on a partial basis, and BR classes had a tendency to select more mature books. When differences between approaches and methods are compared, however, they are small enough to preclude any statistical significance except in one instance which favors LE-AV over PV in the number of books completed; the LE-AV mean of 4.01 compared to the PV mean of 2.23 is significantly different at the .05 level.

The absence of additional significance can be explained by the relatively large S.D.'s, indicating that wide discrepancies existed in the class means within approaches and methods. For example, the LE classes read more books than classes taught by other methods. Yet the S.D. of the LE group (6.34) was almost equal to the mean (6.60) and there were no significant differences between the LE classes and other classes.

All of the means in Table 5.22 related to the children's eagerness to read,as rated by teachers, fall within the range of 2.93 to 3.44. Since a score of 3.0 indicates that children are eager to read "about half of the time" it would appear that none of the means for either approaches or methods vary considerably from that estimate. The mean difference favoring the LE Approach is minimal, and the difference between the highest method (LE-AV) and the lowest (PV) is not significant.

Means for teachers' estimate of children's maturity of reading choice also cluster around 3.0, indicating that the selection of books made by classes as a whole approximates their reading level in the

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*The 36 analysis of variance tables for Word Knowledge, Reading, and Spelling, adjusted by pretests and posttests, are available in the project files.

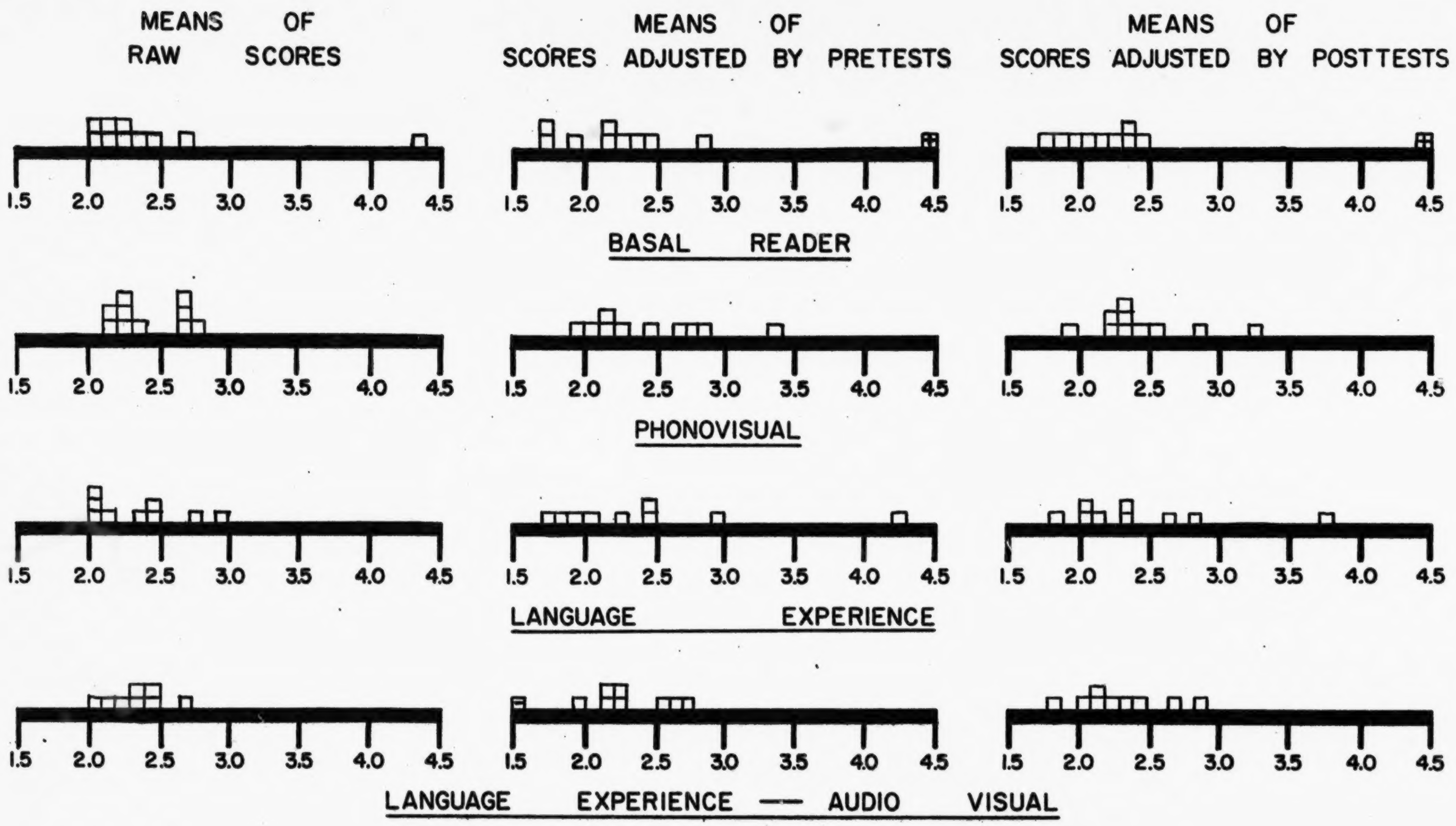

Figure 2: Grade equivalents by class, method and treatment for the MAT reading subtest second grade continuation.

opinions of the teachers. In other words, the children did not tend to choose books that were too easy or too difficult for them. Differences between approaches are negligible, as are differences between methods.

In summary, it can be said that neither approach improved children's eagerness to read or their maturity of reading material more than the other. Although children in the LE Approach had a tendency to read more books (than children in the SC Approach) the difference between the approaches is not significant, precluded perhaps by the wide differences that existed among classes taught by the same approach.

San Diego Pupil Inventory. The questionnaire, An Inventory of Reading Attitude (Standardization Edition) developed by the San Diego County Schools, was administered to all pupils as a posttest in CRAFT 1 and 2. CRAFT 2 results are shown in Table 5.23. Means ranged from 18.35 (BR) to 19.09 (LE), a very small difference which is not statistically significant. In CRAFT 1 the means had ranged from 14.98 (PV) to 17.20 (BR), with a significant difference of over two points between the two SC methods. There was, then, a general upward change in attitude toward reading as measured by this instrument, with the largest gain (over three points) in PV and the smallest gain (one point) in BR. The mean for all combined methods rose from 15.91 in CRAFT 1 to 18.83 in CRAFT 2.

3. The Subsample Results

As in CRAFT 1, individual reading tests were given to a sample group of four children chosen at random from each class. This group consisted of 152 children, 40 of whom were in BR, 40 in PV, 36 in LE, and 36 in LE-AV classes.

In an effort to determine the representativeness of the subsample group in relation to the total CRAFT 2 population, t tests were made using the MAT second-grade posttests as the measuring variable (Table 5.24). An examination of scores made by both groups reveals that tne subsample children had slightly higher scores on all of the subtests, but none of these differences was significant. A similar condition prevails when the subsample children are divided into methods and their scores on the MAT are compared with those of all CRAFT 2 children in the same method. The subsamples in the LE, PV, and LE-AV classes did consistently better than the total population, but none of the t values is high enough to be significant. However, subsample children in the BR group did less well than their classmates, although here again the differences are not statistically significant. The tables for these four sets of comparisons, none of which revealed a significant difference, are not presented here but are in the project files. It would appear ahat the subsample constitutes a representative sample of the total CRAFT 2 population.

In all, nine measures were obtained for the subsample children. Four of these -- Accuracy and Rate Scores for the Gilmore Oral Reading Test, the Gates Graded Word Pronounciation Test, and The Fry List of Phonetically Regular Words -- were concerned with components of oral reading and word recognition. The remaining five measures were obtained from a Writing Sample and were scored on the basis of the Number of Running Words; Different Words; Correctly Spelled Words; Polysyllabic Words; and Mechanics Ratio (the grammatical correctness of the writing).

In CRAFT I the obtained scores were adjusted on the basis of first-grade pretests for only three of the nine individual measures; the covariance adjustment could not be carried out on the other six measures because of occasional empty data cells on the pretests. For this reason, it seemed important to adjust the CRAFT 2 individual posttests on the basis of the first-grade pretests, thus getting an adjusted measure of total progress during two years of instruction.

In analyzing test results two statistical treatments were used, $\underline{t}$ tests and analysis of variance. In making the $\underline{t}$ test comparisons the means scores of children rather than classes were used, and these were adjusted on the basis of pretests since it was found that significant $\underline{r}$'s existed between the pretest measures and the tests administered to the subsample group (see Table 5.25).

The means and standard deviations for the individual tests are shown in Table 5.26 - 5.28. Table 5.26 gives the obtained results for the four methods; Table 5.27 gives the results for the adjusted scores, using the child as unit; and Table 5.28 gives the adjusted results using the class means as units. It may be noted that the means are almost exactly the same in Tables 5.27 and 5.28, since there were four subsample children in each class; slight differences are due to rounding errors. The standard deviations, however, are substantially larger in 5.28 than in 5.27, showing that the variability among class means was quite consistently larger than the variability among individual pupils.

Table 5.27 reveals an uneven pattern. As might be expected, children in the PV method had the highest scores on the Fry test. Since this test consists of 45 items, the PV mean of 22 indicates that these children could correctly identify approximately 50 per cent of the test items. This is 25 per cent better than children in the BR and LE-AV classes and 33 per cent better than children in the LE classes.

On the other hand, it might not have been expected that the PV children would also do better than their subsample peers on the Gates Graded Word Pronounciation Test, since the test items here include many high service words that are phonically irregular. However, PV children as a group correctly identified 52 per cent of the Gates test items. This compares with 42 per cent for the BR and LE-AV groups and 37 per cent for the LE group. Thus it appears that training in a highly phonic program had a favorable effect on word recognition.

Children in the PV classes also had the highest scores on Gilmore Accuracy, achieving an adjusted grade equivalent mean of 4.0. This is six months better than the BR group, eight months better than the LE-AV children and 1.1 years higher than children in the LE classes. The latter group,which had the lowest scores on Gilmore Accuracy, had the highest scores on the Gilmore Rate Score, indicating at least in this case that speed of reading does not necessarily correspond with reading accuracy. It is noteworthy that the means for all four methods were above the norm on Gilmore Accuracy.

To check the expectation that differences would test as significant when based on individual pupil scores but would test as less significant or non-significant when based on class means, t tests were computed on the basis of means of individual scores, while analyses of variance were based on class means.

When t scores were computed comparing subsample groups in the four methods with one another on the four oral reading measures, the PV children were significantly higher than BR and LE-AV groups on all tests at the .01 level, and similarly higher than the LE children on all but Rate (Table 5.30). In turn the BR children did significantly better than the LE group at the .01 level on all tests except Rate, and better, but not significantly so, than LE-AV on three tests; on the Fry test LE-AV had a fractionally higher score. Comparisons between LE and LE-AV reveal significantly higher scores for the latter on Gilmore Accuracy and Fry at the .01 level, and significantly lower scores for the same group on Gilmore Rate.

Analysis of Variance for Oral Reading Tests

For the oral reading tests given to the subsample, the analysis of variance was carried out only for the means adjusted by first-grade posttests, to give maximum weighting to learning in the second grade. Although, as has been shown above, some of the mean differences between approaches and methods looked substantial, the variance within each approach and method was so great that none of the differences between means reached the .05 level of significance. This was true of the Gilmore Accuracy and Rate scores, the Gates Graded Word Pronunciation Test, and the Fry Test of Phonetically Regular Words. These analyses are available in the Project files. As examples, the analyses for the Fry test are given in Tables 5.31, 5.32, and 5.33.

Writing Sample Results

Children in PV did less well than children in other methods on four of the five Writing Sample scores (Table 5.30). Children in LE-AV had highest means on Polysyllabic words and Mechanics Ratio, and second highest means on the three remaining scores. The BR group did better than children in the other three methods on the Number of different Words and the Number of Running Words Spelled Correctly.

Comparisons between method groups by t tests reveal significant differences at the .01 level favoring BR children when compared with PV children on all writing scores, and similarly significant advantages for BR children over LE children on all but the Mechanics Ratio score, where the reverse is true. BR children also did significantly better at the .01 level than LE-AV children on three of the five scores, but significantly poorer than the latter group on Polysyllabic Words and Mechanics Ratio, also at the .01 level. There were no significant differences between LE and PV children except on Mechanics Ratio (where the LE group held a distinct advantage) but the LE-AV children did significantly better than the PV group on all writing sample measures. Similarly the LE-AV children did better than the LE children on five tests, four of which were significant at .01.

On the basis of these results it would appear that the kind of instruction received by the PV group resulted in superior performance on oral reading and word recognition tests, but that there was apparently no carry over to the tests measured by the Writing Sample. The BR group did less well on the oral reading tests than the PV children but better than either the LE or LE-AV group. They also were ahead of the LE and LE-AV groups in most of the measures obtained from the Writing Sample. The LE-AV children did well on the Writing Sample measures, but the same cannot be said for the LE children. Why differences should favor the LE-AV group on this aspect of the testing program is not known.

Analysis of Variance for the Writing Sample

Analyses of variance were performed for the five scores based on the Writing Sample, using class means adjusted by first-grade pretests. For four of the scores (Number of Running Words, Number of Different Words, Number of Words Spelled Correctly, and Mechanics Ratio) the differences between approaches and between methods were consistently below the .05 level of significance. For the fifth score, Number of Polysyllabic Words, two significant differences between methods were found: PV was significantly above LE-AV in the split-session schools, at the .05 level, and LE-AV was significantly higher than BR at the .01 level. The SC Approach surpassed the LE Approach in both split-session and full-session schools, with both differences significant at the .05 level. The difference between approaches seems to be due mainly to the poor performance of the LE-AV classes on this measure. The analyses for Polysyllabic Words are shown in Tables 5.34, 5.35, and 5.36. No good reason has occurred to the Project staff to explain why there were significant differences on Polysyllabic Words, when all of the other group and individual measures of reading and writing failed to show significant differences.

4. Comparison of Boys and Girls

In many studies of beginning reading, girls have repeatedly been reported as surpassing boys in their own school populations, both in readiness and in reading achievement. In the CRAFT project this did not happen when comparisons were made on the readiness pretests and on first-grade reading posttests. However, second-grade posttests indicate a slight superiority of girls over boys when comparisons are made using mean raw scores and means adjusted by first-grade posttests.

The data on sex differences at the end of the second grade are summarized in Tables 5.37 and 5.38. In Table 5.37, where obtained means are given, it can be noted that girls had slightly higher means on 17 of the 20 comparisons related to reading and spelling and that four of the differences are significant at the .05 level; three in Spelling and one in Word Discrimination.

Despite the fact that the boys did not have significantly higher scores than girls on any of the comparisons, they did have consistently higher scores than girls on the three Reading subtests in the LE-AV classes. This finding suggests the possible influence of machines as a motivating factor for the male population in these classes.

Table 5.38 shows the comparisons between boys and girls when the second-grade posttests are adjusted by first-grade posttests.* Here again girls had higher scores than boys on all of the MAT subtests and in all of the classes except LE-AV, where the boys had a slight advantage on Word Knowledge and Reading. As in the raw score comparisons, the differences of greatest significance favoring girls were in Spelling. Otherwise girls scored significantly better than boys in the PV classes on Word Knowledge and Word Discrimination, and in the mean for the combined methods on all three Reading subtests.

Results of the comparisons between girls and boys would seem to indicate that the differential favoring girls can be attributed to characteristics within the content and process of the curriculum, since readiness tests revealed no initial differences between the sexes. In addition, it appears that boys profited from instruction which emphasizes the use of mechanical devices to a very slightly greater extent than girls did.

It should be noted that these results have been based on the child as the statistical unit. If the class had been used as the unit many of the presently significant differences would have appeared non-significant. However, the consistency of the trends favoring the girls in the second grade would not be affected.

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*In computing t values the S.D.'s of the obtained scores were used since S.D.'s for adjusted means were not available.

5. Comparison of Kindergarten and Non-Kindergarten Children

Two-thirds of the second-grade pupils had attended kindergarten for 101-200 half days, while 27 per cent had no pre-first grade schooling. The proportion with 21 to 100 half days was very small, and those with preschool experience in addition to kindergarten was still smaller (Table 5.39). Accordingly, the latter two groups are not considered in this analysis.

Pretest Results

A detailed analysis of pretest results was made by Serwer (1966) in a doctoral dissertation, using 147 of the CRAFT 1 pupils attending two Harlem schools. None of the differences between the means for boys and those for girls was statistically significant. Kindergarten and non-kindergarten children were compared. The kindergarten children had higher means on six subtests; on three (Metropolitan Listening, Murphy-Durrell Letter Names, and Thurstone Identical Forms) the differences were not significant. On two tests (Murphy-Durrell Phonemes and Learning Rate) the difference was significant at the .05 level, and on one test (an experimental visual-motor test) the difference was significant at the .01 level. She concluded that for her pupils, kindergarten experience was accompanied by significant growth in visual-motor coordination and auditory discrimination, but not in comprehension of oral language, in knowledge of letter names, or in visual discrimination of geometric designs. She concluded that the kindergarten program in the two schools should incorporate teaching of letter names and more stress on visual discrimination and on comprehension of oral language.

Since the population used by Serwer was quite representative of the total CRAFT 1 population, it was not felt necessary to replicate her study with the remaining CRAFT 1 children.

Achievement in First Grade

Thirty-five comparisons were made between children with and without kindergarten experience, for the total population and for approaches and methods (Table 5.40). The subtests of the Stanford Achievement Test (Primary 1, Form X) served as measuring variables. All 35 comparisons favored kindergarten children and 24 of these were significant, 20 at the .01 level, and four at .05. When the scores were converted into grade equivalents, the differences between the two groups do not indicate any vast differences (Table 5.41). The kindergarten children achieved at the 1.5 level on four of the five subtests and at 1.6 on the fifth (Spelling), while the non-kindergarten group scored at the 1.4 level on four subtests and at the 1.5 level on Spelling. Thus, despite the significant differences in raw score means, the average grade equivalent difference between the two groups near the end of CRAFT 1 was only about one month.

When the two groups are compared within approaches, the LE kindergarten children had significantly higher means on all five subtests at the .01 level, and kindergarten children in the SC classes did significantly better at the .01 level on Paragraph Meaning and Vocabulary and at .05 on Word Reading (Table 5.40). Grade equivalent means for approach comparisons (Table 5.41) reveal a slight advantage for kindergarten children in both approaches on all subtests. These differences fluctuate between one and three months for the LE children and remain constant at one month for the SC children except in Spelling where both groups achieved equally.

When comparisons between children with and without kindergarten experience were made on the basis of method, there were seven significant differences favoring kindergarten children in the LE and LE-AV classes and four favoring the kindergarten group in the BR and PV classes (Table 5.40). Specifically, LE kindergarten children did better on Word Reading, Paragraph Meaning, Vocabulary and Spelling at the .01 level; LE-AV kindergarten children on Vocabulary and Word Study Skills at the .01 level and Spelling at .05; BR kindergarten children on Vocabulary, Paragraph Meaning and Word Study Skills at .05; and PV kindergarten children on Paragraph Meaning at the .01 level. Grade equivalent scores were not substantially higher for the kindergarten children, averaging one month, and never exceeding two months except on Spelling.

Achievement in the Second Grade

Treatment of the kindergarten data in obtaining CRAFT 2 results was identical to that reported above for CRAFT 1, except that the MAT Primary II, Form C was used in CRAFT 2.

Results of the 28 comparisons made for the total population of kindergarten and non-kindergarten children reveal that the kindergarten children did better on all but one comparison, and 15 of these differences were significant (Table 5.42). The one comparison which favored the non-kindergarten group was on the Spelling subtest for children in the PV classes.

As in the first-grade study, second-grade kindergarten children did significantly better than children without such experience when comparison is made for all methods combined. Mean raw scores of 19.02 on Word Knowledge and 24.49 on Reading were significantly better at the .01 than means of 16.88 and 21.19 achieved by non-kindergarten children. Kindergarten children did significantly better than their classmates at the .05 level on Word Discrimination and Spelling. Translated into grade equivalents, the differences between the two groups favor the kindergarten children by two months on Word Discrimination and by one month on the other three subtests. This indicates that the slight advantage held by kindergarten children at the end of the first grade was maintained through the second grade (Table 5.43).

When children are compared on the basis of approaches, it is evident that differences between kindergarten and non-kindergarten children in the LE Approach were greater than in the SC Approach. The differences are significant for the former on all four subtests, while no significance exists for the latter. Grade equivalent means indicate an advantage of three months on three of the subtests for kindergarten children in the LE Approach, and a difference of one month on Word Knowledge. In the SC Approach the mean of 2.6 for kindergarten children on Word Knowledge was two months better than that for the non-kindergarten group, and the former group did one month better than the latter on Word Discrimination and Reading. There were no differences in Spelling.

Comparing the children within methods, it is apparent that the advantage gained by children in the LE Approach can be attributed largely to the gains made by kindergarten children in the LE Method. These children had an average raw score advantage of 4.59 which, translated into a grade equivalent, approximates three months. Kindergarten children in the LE-AV Method scored an average of 2.95 points higher, or 1.5 months per subtest. Differences favoring kindergarten children in the BR Method and PV Method averaged two months and one month respectively. Comparisons for children within the methods reveal significant t-test differences for kindergarten children in the LE Method on all four subtests, in the BR Method on two subtests, and in the LE-AV Method on one subtest. All but one of these are at the .05 level.

In summary, kindergarten children achieved consistently higher reading scores through the second grade than non-kindergarten children. Having had kindergarten experience was more advantageous to children in the LE Method than to children in the other three methods.

6. Results for Early Readers

The early reader in this study was defined as the child who entered first grade with the ability to identify words, no matter how few, or who acquired this skill during the first month of school. Identification of these children was made by classroom teachers. The purpose behind such identification was twofold: to determine whether the reading children assigned to the two approaches were comparatively equal in pre-reading ability; and to establish whether or not the early readers ultimately achieved any better than their classmates.

Teachers had listed 58 CRAFT 2 children as early readers: 33 in the SC Approach and 25 in the LE Approach. Because of these small numbers, children were not further separated by method and therefore an analysis of their achievement includes only comparisons between early readers and the total CRAFT population, and comparisons between approaches.

A check on the validity of teacher's selections was made by administering the Detroit Word Recognition Test to children identified as early readers. Scores indicated that of the 39 children in

CRAFT 2 who had taken that test, 32 had been able to identify one or more words. The seven children who could not identify any of the test items were retained in the early reader group when an examination of their performance on other pretests revealed that they had scores considerably better than the means for the total population. The 19 children who missed the Detroit test were also retained.

Results for early readers on CRAFT 1 tests are shown in Table 5.44. As a group, the early readers had scores on the Murphy-Durrell Readiness Test which placed them above the 50th percentile on all subtests with the exception of Phonemes, in which they achieved at the 14 percentile rank (Table 5.44). Comparing their scores with those of the total population reveals significant differences at the .001 level favoring the early readers on all components of the Murphy-Durrell Readiness Test as well as on the Metropolitan Readiness Test and the Thurstone Pattern Copying and Identical Forms Tests.

The early readers in the SC and LE Approaches had on the average significantly higher scores on all of the pretest measures than the total groups participating in those approaches. All but three of the differences were significant at the .001 level (Tables 5.45 and 5.46).

A between-approach comparison of early readers indicates that children in the SC Approach had slightly higher scores on all measures of the Murphy-Durrell Readiness Test, but none of these differences reached significance. Conversely, children in the LE Approach had slightly higher scores on the Thurstone and Metropolitan tests, and on the Word Meaning subtest of the Metropolitan scored significantly higher than their peers in the SC Approach (Table 5.47).

Thus results of pretest measures reveal that as a group early readers were superior to the total population, but relatively equal when compared on an approach basis.

When the posttests were given at the end of the first year the early readers maintained their superiority over the total group. Differences on all subtests of the Stanford were significant at .001 level. Early readers in each of the two approaches similarly surpassed their classmates within the same approach. Translated into grade equivalent scores, the differences between early readers and the total group average four months per subtest. The early readers had grade scores ranging from 1.7 to 2.0, whereas the mean grade scores for the total group ranged from 1.4 to 1.6 (Table 5.48).

When early reader scores were compared on an approach basis neither group showed any consistent superiority. The SC children did slightly better on Paragraph Meaning, Spelling and Vocabulary, and the LE children were slightly ahead on Word Reading and Word Study Skills. None of these differences is statistically significant(Table 5.47).

Using grade equivalents, the SC children held a one month advantage on Paragraph Meaning and two months on Spelling, and the LE children scored one month higher on Word Study Skills. Means within both approaches were no lower than 1.7 and no higher than 2.1, and the average score of 1.85 is slightly higher than the normative mean of 1.8 at the time the test was administered (Table 5.49).

At the end of the first year, then, early readers taught the SC and LE Approaches were approximately equal in performance, but evidenced considerably higher scores than the total CRAFT population, and were slightly ahead of the national norms.

Results for the Second Grade

Thirty-two of the original 58 early readers took the city-wide Metropolitan Achievement Test (Primary I, Form B) in October, 1965; 17 in the SC Approach and 15 in the LE Approach. The two subtests, Word Knowledge and Reading, were administered by the classroom teachers and scored by machine; grade equivalent scores were reported (Table 5.50).

These scores indicate a trend favoring children in the SC Approach on the Reading subtest. A difference of four months existed favoring this group, but because of the small numbers of children tested this difference was not significant.

Upper Primary Form C of the MAT was given in April of the second grade (Table 5.50). There were no significant differences between the two approaches on the April tests, although SC children did slightly better on three of the subtests, Word Knowledge, Word Discrimination and Spelling, and slightly less well on Reading. Converted into grade equivalents these differences were never greater than one month (Table 5.51). However, the mean of 2.8 on Reading for the SC group and 2.9 for the LE group represent a reversal of differences from the October testing period. On the same October tests the early readers held an advantage of seven months and six months over the total population on Word Knowledge and Reading tests respectively (Table 5.50A). Again in April the superiority of the early readers prevailed with differences which are significant at the .001 level. When means were converted into grade equivalents (Table 5.50A) early readers averaged nine months higher than the total population for the four subtests. Their mean grade score of 3.3 far surpassed the mean of 2.4 for the total population, and is also considerably higher than the norm of 2.7.

Comparisons between SC early readers and the total population in the SC classes, and between LE early readers and the total population in the LE classes, also show significant differences between the groups on all subtests at the .01 level (Table 5.52).

The early readers, like the total CRAFT population, did not score as high on reading comprehension as they did on tests measuring aspects of word recognition and word reproduction. The difference was greater in second grade than near the end of first grade. It seems reasonable to conclude that the early readers mastered the skills of word recognition readily, but were not as able in comprehension, in which the linguistic and cultural handicaps common to the total CRAFT group were probably more significant.

In summary, the early readers were well ahead of the rest of the CRAFT 1 population on the first-grade pretests, achieved significantly higher on the first-grade posttests, and increased their lead during the second grade. Whether this was the result of early teaching, or simply that both early reading and superior later scores were natural outcomes of superiority in readiness, cannot be determined from the analysis above.

7. Analysis of Teacher's Use of Time as Revealed by Daily Logs

The mean times for each teacher were obtained by computer from 25 logs, based on five consecutive teaching days per month for five months, normally during the third week of the month.

The results for total instructional time are shown in Table 5.53. The SC teachers averaged 162.75 minutes per day as compared with 194.88 minutes for the LE teachers, a highly significant difference. For all 38 teachers combined, the mean of 177.96 minutes came close to the requested 180 minutes.

The results for the major categories of Reading Activities and Supportive Activities are also shown in Table 5.53. The means for the 20 teachers in the SC Approach were 105.45 minutes for Reading (as compared to 90 minutes requested) and 57.30 minutes for Supportive (as compared to 90 minutes requested). Obviously the SC teachers spent somewhat more time than requested on Reading, and much less than requested on Supportive. The differences between the Basal Reader and Phonovisual teachers were small and not significant.

For the 18 Language Experience teachers, the totals were 95.50 minutes for Reading Activities and 99.38 minutes for Supportive Activities. Thus the LE teachers averaged 10 minutes less per day on Reading Activities and 42 minutes more per day on Supportive Activities than the SC teachers. Between the two LE Methods, the LE teachers averaged seven minutes per day more on Reading Activities and 15 minutes per day more on Supportive Activities than the LE-AV teachers.

The mean times for the six Reading categories and 11 Supportive categories are shown in Table 5.54. Considering the Reading Activities first, the great differences between the SC and LE approaches are clearly evident. The SC teachers averaged 50.22 minutes per day in Basal Reader Activity, as compared to 3.12 minutes for the LE teachers. The LE teachers had a mean of 34.81 minutes on Individualized Reading, compared to 7.76 minutes for the SC teachers. For Experience Charts the means were 6.21 minutes for SC teachers and 15.94 minutes for LE teachers. The LE teachers tended to spend more time on Sight Word Drill (13.60 minutes vs. 9.90 minutes) while the two approaches were essentially even in Other Reading and only slightly different in Phonic Activity.

When the Basal Reader and Phonovisual methods are compared, the distinctive differences between these two SC methods are apparent. The BR teachers spent more time on Basal Reader Activity (54.67 minutes vs. 45.76 minutes) and on Other (16.11 minutes vs. 6.04 minutes). The Phonovisual teachers spent far more time on Phonic Activity 28.57 minutes vs. 12.42 minutes). The two methods did not differ significantly on the other three Reading categories.

In Supportive Activities the two Skills-Centered Methods were generally quite similar. Both spent less than half as much time on Science and Social Studies than the 30 minutes for each that had been requested. Of the various language arts activities, both spent the most time on Writing. The deficit in Supportive Activities time is largely due to the Social Studies and Science categories.

When the LE and LE-AV Methods are compared, there are no significant differences in the pattern of Reading Activities. It should be noted that in the CRAFT 2 LE classes Individualized Reading displaced Experience Charts as the main reading activity, involving 35.00 (LE) and 34.62 (LE-AV) minutes per day as compared to 18.30 (LE) and 13.58 (LE-AV) minutes per day. It should be noted also that both LE methods devoted more time to Phonic Activity (16.25 minutes and 15.23 minutes) than the BR teachers (12.42 minutes), although less than the PV teachers (28.57 minutes)

In the Supportive Activities, the LE-AV teachers spent considerably more time on Audio-Visual Activities and Audio-Visual with Intermittent Discussion. The LE teachers spent more time than the LE-AV teachers on Listening to Stories, Discussion, Writing, Art Work with Reading, and Other Language Arts. The two groups of teachers were not differentiated on Listening to Poetry and Dramatization.

These findings indicate that there were substantial differences among the four methods in the way each group of teachers used instructional time. In addition, there were also substantial differences among the teachers within each of the four methods, as shown in Table 5.53 by the large standard deviations. The largest standard deviation in that table is for the Basal Reader teachers on All Activities. Their mean was 163.50 minutes, with a standard deviation of 34.43 minutes. Since the mean plus and minus one standard deviation indicates the approximate range of the middle 68 per cent, one can conclude that the middle two-thirds of the Basal Reader teachers varied between 129 minutes and 198 minutes; a quite substantial range.

It seemed worthwhile to check whether these rather sizable differences in use of time were related to differences in class achievement. This has been done by correlating each Log score with adjusted class means on the MAT, first for the total group of 38 teachers, and then for each of the four methods. The results of these correlation studies are presented in the next two sections.

Correlations with Achievement for All Teachers Combined

An intercorrelation matrix of 73 x 73 variables was computed for the total group of 38 teachers. The eight criterion variables were the second-grade MAT subtest class means adjusted on the basis of the first-grade pretests (variables 66-69); and the second-grade MAT subtest class means adjusted on the basis of the first-grade posttests (variables 70-73). The former are measures of class learning for the two-year period, with initial differences in readiness partialled out. The latter four are measures primarily of achievement in the second grade only, since the means have been adjusted to eliminate the differences found on the first-grade posttests. The correlations of the 73 variables with the eight achievement measures are shown in Table 5.55. The 20 variables derived from the Daily Log are numbered 30 to 49 in this table.

Considering the major categories first, the r's with achievement for Total Time per day and Reading Activities time are consistently small and not significant. For Supportive Activities time the r's are consistently negative, although only the r's with Spelling (-.32)are just high enough to reach significance at the .05 level of confidence.

In CRAFT 1, correlations with achievement were positive and significant for Reading time, and were not significant for Total time and Supportive time. In CRAFT 2, the positive relationship for Reading time disappeared and a slight negative relationship with Supportive time appeared, which is significant only for the Spelling subtest.

Reading time was subdivided into six categories: Basal Reader Time, Experience Chart, Individualized Reading, Sight Words, Phonic Activity, and Other Reading Activity (variables 33-38). Of these, only Other Reading Activity shows a significant correlation; it has positive although low correlations with Reading scores both adjusted for pretests (.32) and for posttests (.36). This would seem to suggest the desirability of a wide variety of reading activities. Of the 48 correlations between the six Reading sub-categories and the eight achievement measures, 19 were plus and 29 were minus; this amount of variation from an even division of 24 and 24 is not statistically significant.

Supportive Time was subdivided in CRAFT 2 into 11 Categories: Listening to Stories, Listening to Poetry, Discussion, Writing, Audio-Visual Activity, A-V with Intermittent Discussion, Dramatization, Art

Work with Reading, Other Language Arts, Social Studies, and Science. The last two categories (Social Studies and Science) were to be used only by the BR and PV teachers. These 11 categories are numbered 39 to 49 in Table 5.55.

An inspection of the r's for these 11 categories shows only one category that has significant correlations. Listening to Stories has consistently negative correlations with the four MAT subtests. All four of the r's with MAT adjusted by first-grade pretests are significant, and three of the four r's with MAT adjusted by first-grade posttests are significant, at the .05 level. Thus it seems that in general, teachers who spent more than average time reading or telling stories to the children obtained below average results. The obvious implication seems to be: more reading by the children, less by the teachers.

Of the 88 r's for these 11 categories, 63 are negative and 25 are positive, as compared to a chance distribution of 44 and 44. This trend toward negative r's is significant at the .01 level using Chi-Square. Thus, although most of the r's are individually insignificant, the tendency is for the sub-categories within Supportive Activities to have slightly negative correlations with both sets of achievement scores. When Social Studies and Science are omitted the trend is even stronger (59 out of 80).

Correlations with Achievement for the Approaches and Methods

An effort to find out more about the relationship of instructional time to achievement was made by getting the correlations between Reading, Supportive, and All Activities times, and the class means on the four MAT subtests adjusted by first-grade posttests. These correlations are shown in Table 5.56.

In interpreting these r's, one must note that the smaller the group of teachers, the higher the correlation must be in order to be considered significantly greater than zero. Thus, the .05 level of confidence is reached for 38 teachers with an r of .32; for 20 teachers, with an r of .44; for 18 teachers, with an r of .47; for 10 teachers, with an r of .63; and for 9 teachers, with an r of .67.

Most of the correlations in Table 5.56 are not significantly greater than zero. There are only two apparently significant r's. One is the r of -.66 between Reading Time and MAT Reading, for the PV teachers. This negative correlation is contrary to expectation; it tends to become more understandable when the correlations between the six kinds of reading activity and MAT Reading are examined, as will be done below.

The other apparently significant correlation is the r of -.69 between Supportive Time and Spelling, for the nine LE teachers. For this group of teachers the other r's for Supportive Time are similar in direction, although smaller. Again, an explanation will be sought below in considering results for the 11 kinds of Supportive activities.

It should be noted that in the CRAFT 1 analysis, Reading Time was significantly and positively correlated with adjusted reading scores; in CRAFT 2 this is not generally true.

Correlations of Specific Log Categories with Achievement by Method

The correlations by methods were computed only for the MAT Word Knowledge and Reading subtests as adjusted by first-grade posttests. This adjustment minimizes the effect of first-grade achievement on second-grade achievement. The results are shown in Table 5.57.

Within the BR group there is only one significant r, .69 between Listening to Poetry and Reading. There were non-significant but positive r's between Sight Words and both reading scores (.62 and .57), and between Other Reading and both reading scores (.50 and .45).

For the PV teachers the most notable results are the negative r's between Phonic Activity and both reading scores (-.61 and -.75), the latter being significant. Apparently in this method a saturation point is reached, and in second grade the PV teachers tended to get best results with least time spent on phonics. The negative r's for Phonic Activity account for the negative r for Reading Time mentioned above. The r between Basal Reader time and Reading is almost high enough to be significant (.59).

In the LE group of teachers there was one significant r, -.68 between Listening to Stories and Reading. This group of teachers spent over 15 minutes per day on this category, and there is a strong tendency for those who spent more time than that to get poorer results. Seemingly substantial-appearing but non-significant negative r's were found for Art Work with Reading (-.55 and -.60), for Phonic Activity (-.50 and -.46), and for Writing (-.45 and -.43). The only positive r's of substantial magnitude are with Other Reading (.43 and .60).

For the LE-AV teachers none of the r's was high enough to be significant. The largest r's are with Dramatization (.65) and Other Reading (.51).

Whereas in CRAFT 1 the teachers who put most time into activities distinctive to their teaching method tended to get the better results, this did not hold true in CRAFT 2. There is no consistent pattern. There are slight indications that the teachers who had considerable variety in their reading activities did well, and that large amounts of time spent on certain kinds of activities, which vary from one method to another, can be detrimental.

8. Analysis of the Results of OScAR R

Results of OScAR R in CRAFT 1

For the official report of CRAFT 1 results, the 13 OScAR R scales were entered in a 54 x 54 intercorrelation matrix (Harris & Serwer, 1966a, p.88). The results were disappointing. The 13 OScAR scales were correlated with adjusted class means on the five Stanford subtests and four adjusted individual tests, for the 48 teachers in all methods combined, with not one of the resulting 117 r's significant at the .01 level.

However, re-inspection of this table after publication disclosed a few r's that were significant at the .05 level, and which had been overlooked. Most of these r's were based on all 48 teachers, but some of the OScAR R scales applied to only one of the two approaches and were based on 24 teachers.

The Control scale had negative correlations with all five adjusted Stanford scores, and two of these r's were significant at the .05 level (with Word Reading, -.30; and with Paragraph Reading, -.32). The Total Interchanges scale had significant r's with three Stanford scores (with Word Reading, .35; with Spelling, .32; with Word Study Skills, .33). The LE-AV scale had a positive correlation only with Vocabulary (.42).

Thus a reexamination of the CRAFT 1 OScAR R correlations turned up some leads that seemed worth exploring further. In particular, it seemed that the more disciplinary statements, the poorer the reading scores; and the larger the number of pupil-teacher verbal interchanges, the better the learning of word identification skills.

Subsequently a correlation analysis was done separately for each of the four CRAFT methods, using the first grade adjusted Stanford class means for the Word Knowledge and Paragraph Meaning subtests. These r's are shown in Table 5.58. Since the number of teachers in each method was only 12 (11 in LE, because of extended absence of one teacher), an r must be at least .58 to be significant at the .05 level. Some of the non-significant r's in the .40's and .50's may be meaningful for these teachers, even though the r does not justify high confidence that a similar result would be found with another group of teachers.

The Empirical LE scale had a significant r only with Word Recognition for the LE teachers. The Empirical SC scale had a significant r only with Paragraph Meaning for the LE-AV teachers; the A Priori SC scale had an r of .54 (non-significant) for the same group and test. This result is difficult to explain. The two scales intended to distinguish between the LE methods seem to have done so. The high AV scale has positive, significant r's for the LE-AV teachers and negative, smaller r's for the other LE teachers. This reinforces the conclusion based on analysis of the Logs, that spending time with AV procedures is profitable when the teachers have had training in the use of AV equipment for the teaching of reading, but unprofitable when the teachers have not had such training. The results of the low AV scale confirm this conclusion, in that the r's were plus for the LE teachers and minus for the LE-AV teachers. The rest of the scales based on teaching method did not turn up any significant relationships.

The five scales based on the Dynamic side of OScAR R produced some interesting findings. The Control scale, with generally negative r's, had its highest r for the LE-AV teachers, -.78 with Paragraph Meaning. High Control scores, indicating frequent efforts to maintain discipline, were negatively correlated with reading achievement in three of the four methods, having r's close to zero only for the PV teachers.

The Positive Motivation scale had positive r's with achievement for both LE methods, with one r of .58, and non-significant r's with achievement for the SC methods. The Negative Motivation scale had a high (-.69) negative r with Paragraph Meaning for the LE-AV teachers, and the other three r's for the LE Approach are on the minus side, although very small; r's for the BR and PV methods are positive, although not high enough to be significant. Thus, there is a suggestion that reliance on praise and avoidance of scolding is associated with good achievement in the LE methods, but not in the SC methods.

The Total Interchanges scale had r's of .50 and .54 with Word Recognition in the two LE methods, and all eight r's were on the plus side, reinforcing the low but significant r's for the total group of teachers.

The Per Cent of Meaningful Interchanges scale, interestingly, had minus r's for the BR Method and plus r's for the PV Method, suggesting that best results were obtained by the BR teachers who used more than an average amount of drill, and by PV teachers who used less than an average amount of drill, within their method.

Results of OScAR R in CRAFT 2

The OScAR R scores for the second-grade teachers are based on four sets of observations rather than eight as in the first grade, and therefore are probably somewhat less reliable. The mean scores for the four methods are to be found in the table giving means for methods for 74 variables (Table 5.59). The OScAR R variables are numbered 13 to 25 in this table.

The mean scores for the four methods show a number of differences large enough to be statistically significant (see Table 5.60). As would be expected, the BR and PV Methods were higher than the LE and

LE-AV Methods on the Empirical and A Priori SC scales; and the A Priori LE scale was significantly higher for LE over both BR and PV. The Empirical BR scale distinguished between the BR and PV Methods and the Empirical LE high AV scale distinguished between the LE-AV and LE Methods. These differences were all in the expected directions and provide additional evidence of real differences in the teaching methods.

The means for both Control and Negative Motivational Climate were significantly higher for the BR and PV Methods than for the LE Method, and BR was significantly higher than LE-AV on Control. BR was higher than PV on Per Cent of Meaningful Interchanges. Other differences between means were not significant at the .05 level.

Correlations with Achievement. For the whole group of 38 teachers in CRAFT 2 a few significant *r*'s were found; OScAR R variables are numbered 17 to 29 in Table 5.55. The Empirical LE scale had consistently positive *r*'s with the adjusted MAT means, and its *r* with Reading was significant for both adjusted means. The Empirical SC scale had a significant negative *r* with Reading adjusted by posttests, and the other *r*'s for this scale were all negative although smaller. The *r*'s for Control and Positive Motivation with Reading were not significant while the *r* for Negative Motivation and Reading was significant.

The r's with achievement by method are shown in Table 5.61. Several interesting trends are apparent. The Empirical LE Scale correlated positively with Reading for the BR and LE-AV Methods, but close to zero for PV and LE. Conversely, the Empirical SC Scale has a significant minus *r* for the BR teachers, and the Basal Reader Scale had minus *r*'s for both BR and PV. Apparently the SC teachers who enriched their programs with language-experience activities tended to get better results than those who did not. The A Priori LE Scale had a significant negative *r* with Reading for the PV teachers, but positive, smaller *r*'s for the other three methods. Conversely the Empirical SC Scale had a significant negative *r* with Reading for the BR teachers and smaller negative *r*'s for PV and LE. The A Priori SC Scale had moderate negative *r*'s for the BR and LE teachers.

These findings based on closeness of adherence to a specific way of teaching are not completely consistent, but they suggest that in CRAFT 2 those skills-centered teachers who enriched their programs with a considerable amount of language experience activity tended to get better results than those who adhered closely to the skills program with relatively little enrichment. For the LE and LE-AV teachers the relationships are less clear. Correlations with the two LE scales tend to be positive but below significance, suggesting that the LE teachers who emphasized typical LE procedures did better than those who deviated. The AV program in second grade seems not to have been very effective, even for the LE-AV teachers.

The scales from the Dynamic side of OScAR R also showed some significant r's. The Control Scale had generally negative r's with achievement, and these were significant for the PV and LE teachers. The Positive Motivation Scale had negative r's for the two SC Methods (one reaching a significant level) and positive r's for the two LE Methods (one significant r of .67 with Reading for the LE-AV teachers). The Negative Motivation Scale had negative r's for the BR, PV and LE teachers, and four of the six r's were significant. Finally, Per Cent of Meaningful Interchanges had negative r's for the BR teachers.

These results suggest the following interpretations: (1) Those teachers whose lessons were punctuated with many disciplinary statements did not produce as good achievement as teachers who used such remarks less frequently. (2) In the SC Approach a high frequency of motivating comments, whether positive or negative, was associated with poor results, with the evidence clearer for negative motivation. (3) In the LE Methods negative motivation tended to be associated with poor results. (4) In the LE-AV Method both positive and negative motivation scores tended to be related to achievement; possibly this is an indication of teacher effort in this method, which suffered for lack of consultation and equipment during CRAFT 2.

The correlations with achievement of the various OScAR R scales indicate that some of the dimensions were significantly related to achievement, and that these varied somewhat from method to method. The main finding is that the Control and Negative Motivation scales tended to be negatively correlated with reading achievement. This does not prove a causal relationship. It may be that high Control and Negative Motivation scores show efforts by the teacher to control behavior which was itself a response to ineffectual teaching. Another finding is that SC teachers who enriched their programs with a variety of reading and language arts activities obtained more growth in reading than those who did not.

9. The San Diego Teacher Inventory of Approaches to the Teaching of Reading

In June of 1965, before the second-grade instructional program began, second-grade teachers using the LE Method had the highest score on the Basic Scale (44.33) indicating agreement with that approach to reading, while teachers in the other three methods had scores indicating a tendency toward agreement (Table 5.62). Teachers in all four methods indicated a tendency to agree with the Individualized and Language Experience scale with the LE-AV teachers scoring highest (43.11 and 42.77 respectively) on both scales and PV teachers scoring lowest (36.40 and 34.00).

When a statistical analysis was made for the mean scores among method groups, there were five significant differences (Table 5.63) These favored the LE and BR teachers over the LE-AV teachers on the

Basic Scale, the LE-AV teachers over the PV and LE teachers on the Individualized scale, and the LE-AV teachers over the PV teachers on the Language-Experience scale. Comparing the results between the two main approaches, the SC teachers scored somewhat higher on the Basic scale and lower on the Individualized and Language-Experience scales, but the differences were not significant.

When the San Diego Teacher Inventory was given again at the conclusion of the year, significant changes in the attitudes of teachers were found (Table 5.62). This was most notable in the case of the LE teachers. A drop in their mean score on the Basic scale from 44.33 on the pretest to 34.22 on the posttest is significant at the .01 level, while changes from 37.44 to 43.88 for the Individualized, from 37.11 to 44.22 for the LE Scale were significant at the .05 level. These scores indicate a change in attitude for these teachers from a greater commitment to the basal reading method at the beginning of the study to a closer identification with the LE method at the end of the year.

Significant changes were also found for teachers in the BR Method. They evidenced less affiliation with the Individualized Scale at the end of the year, and their mean score of 31.80 on the Language-Experience Scale indicated a tendency to disagree with that method by the time of the posttest. Phonovisual teachers moved from a tendency to agree to a tendency to disagree with the Language-Experience Scale, significant at the .05 level. The LE-AV teachers showed a significant change on the Individualized Scale from 43.11 to 47.00.

As might be expected from the foregoing, between-method comparisons reveal numerous significant differences on the posttest favoring the BR and PV methods on the Basic Scale and the LE and LE-AV methods on the Individualized and Language-Experience Scales (Table 5.64).

A review of the results indicates that most teachers were more favorably disposed toward the method they were using by the conclusion of the study than they were when the school year began. Furthermore, the teachers showed less agreement with other scales than they did with the one which reflected the philosophy behind the approach they were using.

Relation of San Diego Scales to Pupil Achievement

Intercorrelation matrices computed within methods, including the teachers' scores on the three San Diego scales and eight achievement measures (four adjusted by first-grade pretests and four adjusted by first-grade posttests), indicated no significant relationships between the measures. Another intercorrelation matrix including San Diego scores of all teachers, irrespective of method, was computed. A section of this 73 x 73 variable matrix showing correlations of the San Diego scores with the eight adjusted MAT scores may be found in Table 5.55.

Results of the matrix computed by method reveal little in the way of significant relationships between teacher attitude and pupil achievement. The correlations, although occasionally substantial, do not quite approach statistical significance because of the small number of teachers participating in any one method (9 or 10).

The three significant relationships found were between San Diego posttest scores and achievement variables adjusted by first-grade posttests. Two of these occur between PV teachers' scores on the Basic Scale and results on the Reading and Spelling subtests. Both correlations are negative (-.71 and -.65) and significant at the .05 level. All other correlations for the Basic Scale for PV teachers are also negative. These negative _r_'s contrast with the positive ones made at the time of the pretest, when the attitude of the teachers toward the Basic Scale was significantly less favorable than it was at the conclusion. This would seem to indicate that a class's achievement in reading tended to decrease as the teacher's enthusiasm for the PV Method increased. Here, as in the Logs, where the _r_ between the time PV teachers spent on Phonic Activities and Reading scores was significantly negative (-.61 and -.75), it might be hypothesized that children who were overexposed to components of the PV Method reacted negatively in consequence. This hypothesis is reinforced when one notes also that PV teachers became significantly more accepting of the Basic Scale as the study progressed, and at the time of the posttest the mean of 46.80 made by PV teachers on this scale was the highest of the four groups, and indicated strong agreement.

The other significant relationship was that for the LE-AV teachers between the Language Experience Scale and Reading, .64. All other LE-AV _r_'s for this scale are also positive, suggesting that teacher degree of acceptance of language-experience thinking was related to good results within the LE-AV Method.

Among the BR teachers there was no significant change in the Basic scale from pretests to posttests. There were no significant relationships between any of the scales and achievement measures. However, on the San Diego posttest there were consistently plus correlations between the Individualized scale and all eight achievement measures for this group. These _r_'s ranged from .25 to .45. Somewhat lower _r_'s, ranging from .14 to .36, were found between the Language-Experience Scale scores for the BR teachers and achievement; their Basic Scale _r_'s were all very low (.00 - .23).

Similarly, correlations for the LE teachers were negligible when comparisons are made between the Language-Experience and Individualized Scales and second grade achievement. However, the negative results for these same teachers, ranging from -.30 to -.45 on all achievement variables, may well reflect the difference in the pre- and posttest scores made by these teachers on the Basic Scale. It may be recalled that this difference, which favored the Basic Scale at the pretesting, was significantly less so at the time of posttesting.

On the larger 73 x 8 Table (Table 5.55) there are no significant relationships between the San Diego scales and achievement, and all r's are low. This could be expected since the scores of all teachers were used, irrespective of method or approach.

In summary, strong commitment to Basic methodology correlated negatively with achievement for the PV teachers, and not significantly for the other three groups. The LE-AV teachers whose classes did well on Reading scored relatively high on the Language Experience Scale. For the total group of 38 teachers there is no San Diego Inventory pattern that goes with superior or inferior results.

10. Other Variables

Most of the variables that were correlated with adjusted posttest class means (Table 5.55) have already been discussed. There are in that table a number of other variables to consider. Nearly all of these had r's with achievement that were of negligible size.

The two community measures, median year of education of adults and median adult income, did not show r's significantly greater than zero.

A number of teacher variables had non-significant, very small r's: age, educational level, type of teaching certificate, total experience, second-grade experience, marital status, and number of children. Teacher absence had consistently negative r's with achievement and seven of the eight r's are significant but low. Teacher quality rating, which was a combination of global ratings on a one to five scale by the assistant project director and the district reading consultant, had r's that were all positive but ranged only from .06 to .28, and none were significant.

Another teacher variable that had r's approximating zero was teacher-pupil similarity in ethnic background; the r's ranged from -.01 to .09, showing that it made no difference in pupil attainment whether the teacher was white or Negro. Finally, on the Teacher Attitude Toward CRAFT Method Scale all of the r's with achievement were positive and two (Word Knowledge and Reading, adjusted by pretests) were significant. Since there were no significant differences among methods on this scale, this means that in all methods teachers whose pupils did well tended to like the method better than teachers whose pupils did poorly.

Pupil absence in first grade had negative but extremely low, nonsignificant r's. Pupil absence in CRAFT 2 had seven non-significant r's and one that barely reached significance at the .05 level; a positive r of .33 with Spelling adjusted by posttests. The only plausible explanation is that this may be one of the extreme fluctuations from zero that tend to occur occasionally if one computes enough r's.

Class size had consistently negative but extremely low r's with achievement both for the CRAFT 1 year and in CRAFT 2. Finally, the per cent of CRAFT children in the class had r's too low to be significant.

In general, then, the only one of these variables that had a consistent relationship with achievement was teacher absence. Classes whose teachers were regularly present tended to do better than classes whose teachers had high absence rates.

CHAPTER VI

THE THIRD GRADE FOLLOW-UP

The plan for the CRAFT Continuation included a follow-up study to be conducted when the pupils were in the third grade. Since it was anticipated that by April of the third grade (when city-wide reading tests are given) there would be too few CRAFT children remaining in their original schools to make possible a control of teaching method, the follow-up study was designed to locate as many as possible of the original CRAFT children and to collect and analyze their third-grade scores on tests of reading achievement.

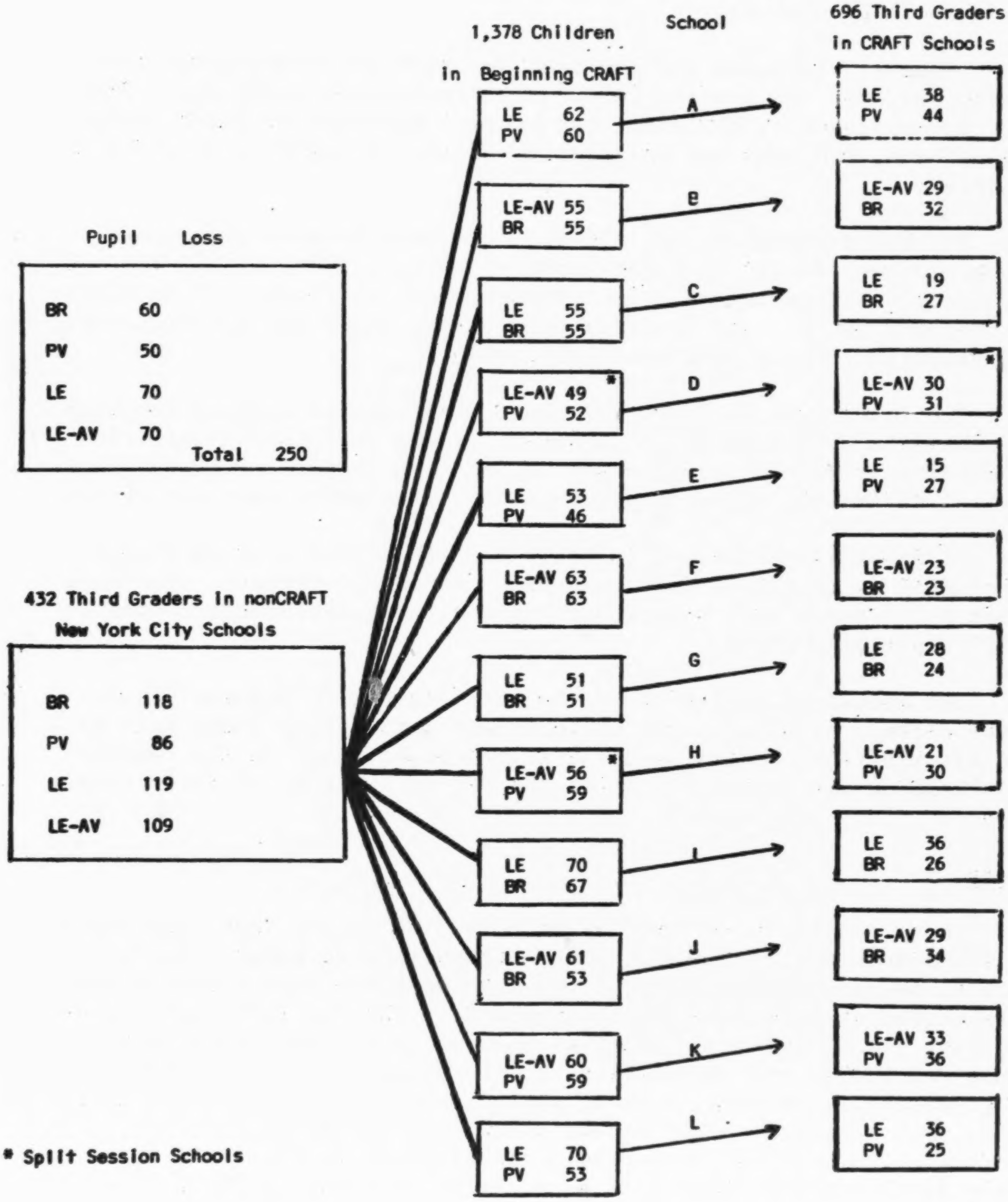
1. Procedures for CRAFT 3

Procedures for keeping track of the children who left CRAFT classes during first and second grades have been described in Chapter I. In the fall of 1966 many weeks were spent in setting up a school-by-school record of the CRAFT children. Of the 1,378 children who had taken the first-grade pretests, 1,128 were located (Table 6.1). Two hundred fifty children could not be located; either they had moved out of New York City, or their moves had not been recorded properly. Of those located, 696 were still attending the CRAFT schools in which they had started first grade, and 432 were in other schools (see Figure 3).

The distribution of the located pupils by method and approach is shown in Table 6.2. The distribution among methods was fairly even, although the PV Method had a slightly larger number still in CRAFT schools.

Table 6.3 shows the group and grade distributions of the 1,128 children who were located. Group I includes the main CRAFT experimental population, those children who were in the CRAFT project from the first-grade pretests through the second grade posttests and who were included in the CRAFT 1 and CRAFT 2 analyses. Of the 598 children in Group I, 46 were in Grade 2, one was in Grade 1, and 17 were in special classes that do not take the city-wide achievement tests. The main third-grade analysis is based on the 489 children in Group I for whom scores were found on the third grade Metropolitan Reading Test given in April, 1967. Supplementary analyses were made for those who had scores on the MAT as of October, 1966 (early in third grade) and on the New York State Reading test for Third Grade, also given in October, 1966.

Group II in Table 6.3 includes 371 children who were in the CRAFT Project in the first grade, but left the CRAFT school between the first-grade posttests and the second-grade posttests. Those


1,378 Children in Beginning CRAFT
School
696 Third Graders in CRAFT Schools
Pupil Loss
BR 60
PV 50
LE 70
LE-AV 70
Total 250
432 Third Graders in nonCRAFT New York City Schools
BR 118
PV 86
LE 119
LE-AV 109
LE 62
PV 60
A
LE 38
PV 44
LE-AV 55
BR 55
B
LE-AV 29
BR 32
LE 55
BR 55
C
LE 19
BR 27
LE-AV 49 *
PV 52
D
LE-AV 30 *
PV 31
LE 53
PV 46
E
LE 15
PV 27
LE-AV 63
BR 63
F
LE-AV 23
BR 23
LE 51
BR 51
G
LE 28
BR 24
LE-AV 56 *
PV 59
H
LE-AV 21 *
PV 30
LE 70
BR 67
I
LE 36
BR 26
LE-AV 61
BR 53
J
LE-AV 29
BR 34
LE-AV 60
PV 59
K
LE-AV 33
PV 36
LE 70
PV 53
L
LE 36
PV 25

* Split Session Schools

Figure 3: Distribution of CRAFT First Grade Children in Third Grade

children, then, all had one year in the CRAFT classes (up to first-grade testing in May), and many of them had spent part of the second grade in CRAFT classes.

Group III includes 140 children who took the first-grade pretests, but left the project before the first-grade posttests. They are, in consequence, children with minimal exposure to CRAFT teaching methods, who were not included in either the CRAFT 1 or CRAFT 2 analyses.

It should be noted that 101 children were located in second-grade classes and six in first-grade classes, a total of 107 who had experienced non-promotion. In contrast, four children were located in fourth grade and two in fifth grade, well under one per cent who had experienced acceleration.

The lower part of Table 6.3 shows the kinds of classes in which the children were located in 1966-67. Of the total 1,128 children, 1,080 were in regular classes and 48 (about four per cent) were in special classes in which the city-wide reading tests were not given.

Of the children listed in Table 6.3, those who were in grades other than grade three, those who were in special classes, and those whose third-grade test scores were missing were excluded from the CRAFT 3 analyses below.

The necessary exclusion of the children not in regular third-grade classes mainly removed children who were in the lower half of the distribution of reading ability, and means based on the remaining children are probably a little higher as a result of their exclusion.

Tests

Three reading tests were given city-wide in New York City third-grade classes during 1966-67. The Metropolitan Advanced Primary, Form B, was given in October, 1966, with separate answer sheets that were scored by Harcourt, Brace & World Co. The New York State Reading Test was administered state-wide, also in October; this test provides raw scores and percentiles, but no grade scores. The Metropolitan Elementary Reading, Form A, was administered city-wide in April, 1967, with separate answer sheets which were scored by Harcourt, Brace & World Co.; scores became available late in June. For brevity these April reading tests will be referred to below as CRAFT 3 tests. The Arithmetic Concepts subtest of the MAT was also given in April, 1967, and scores on it were obtained.

Teaching Method

No attempt was made to maintain any control over the assignment of CRAFT children to third-grade classes, or to influence third-grade teaching methodology. Thus, it may be assumed that the classification procedures and teaching methods in third grade were representative of common practice in New York City elementary schools with disadvantaged Negro pupil populations. It is customary in such schools to utilize a modified form of ability grouping; often there are two main ability groups in a class, and some overlapping of ability levels between classes. Thus, the heterogeneous grouping in effect in the CRAFT Project through the first and second grades was not maintained in the third grade.

Most third-grade teachers in New York City use basal readers, but there is considerable variation in the degree to which the accompanying manuals are followed. General policy favors using a reader appropriate for the reading level of the group, which for some children is considerably below grade placement.

During 1966-67, although new basal readers purchased were mainly of series emphasizing city life and an integrated cast of characters, a majority of third-grade classes were probably still using older books. Official encouragement was given in the city syllabus to integrating reading instruction with other language arts and to the utilization of a variety of enrichment activities, including individualized independent reading.

Since there was no evidence that either pupil classification policies or instructional methods in third grades in the CRAFT schools were different from the third-grade policies and methods in the many elementary schools to which CRAFT children had transferred, the children who were in CRAFT methods through the second grade (Group I) are considered to have been in third-grade classes that were similar, regardless of whether they were in CRAFT schools or in other schools. The children in Group II (at least one year in a CRAFT class) are also assumed to have been in similar instructional programs in second and third grades.

Statistical Treatment

For Group I, raw score means were computed for each of the three tests given during the third grade. In addition, the April MAT reading tests were adjusted by a procedure similar to that used in CRAFT 2. The same four first-grade pretests employed in CRAFT 1 and CRAFT 2 adjustments were used as predictor variables in a multiple regression equation, and a predicted score was computed for each pupil. The pupil's obtained score was adjusted for the disparity between obtained and predicted score, and means and standard deviations for the adjusted scores were obtained for approach and method. This was done for each subtest. Group results were also obtained for boys and girls, for the early readers, and for children with and without kindergarten experience. In addition, the April MAT scores for Group I were adjusted on the basis of CRAFT 2 posttests, in an attempt to partial out pre-third grade learning differences and thus to highlight the amount of reading growth in third grade.

The Child as a Unit

Reasons were given in Chapter III why the class was used as the statistical unit in the main CRAFT 1 and CRAFT 2 analyses. Since the children in each classroom were all exposed to the same teaching, and differences among teachers in each method were found to be large and important, the class seemed the appropriate unit. In drawing comparisons between CRAFT results and those of other comparative studies of reading methods, it should be noted that differences between means which were no larger than those found in CRAFT have been reported as significant in studies using the pupil as a unit, while the CRAFT analysis using the class as unit found them non-significant.

In CRAFT 3 there were no longer any class units. Even the children who remained in the CRAFT schools were assigned to third-grade classes on the basis of criteria other than CRAFT method. The pupils who had moved to other schools were scattered through many different classes.

It has been necessary, therefore, to use the child as the statistical unit in the CRAFT 3 analyses. Because the number of degrees of freedom is far greater when based on number of children than when based on a much smaller number of classes, it may be expected that some rather small differences may be found to be significant. This complicates comparison of third-grade results with first and second-grade results, since different criteria of significance were used.

In an effort to correct for this change of criteria, attention will be paid to the size and consistency of direction of CRAFT 3 differences, as well as to the question of statistical significance.

2. Pretest Results

The results of Group I on the first-grade pretests are shown in Table 6.4. Considering first the totals for the two approaches, the means for the LE Approach were slightly higher than those for the SC Approach on all four pretests.

Within the SC Approach, BR surpassed PV slightly on two pretests and was slightly lower on two pretests; the subjects in the two methods were, therefore, approximately equal in initial ability. Within the LE Approach, LE was slightly higher than LE-AV on two pretests and lower on two, showing approximate equality.

Sex differences were not consistent. Boys and girls were approximately equal on one pretest, boys scored slightly higher on two pretests, and girls scored slightly higher on one pretest. This confirms the CRAFT 1 report in which each sex was ahead on three pretests, and all differences were too small to be significant (Harris & Serwer, 1966a, p. 87).

The pretest results for Group II are shown in Table 6.5. In comparison to Group I, Group II had a higher mean on one pretest, an equal mean on one, and lower means on two. The differences between the two groups were small and this fact supports the conclusion stated in the CRAFT 2 analysis that the CRAFT 2 children were a representative sampling of the CRAFT 1 population.

Pretest results for Group III, the smallest group, are shown in Table 6.6. They surpassed Group I on two pretests, did equally well on one, and did less well on one. Again, the results support the conclusion that the children who remained in CRAFT and those who left were approximately equal in readiness for reading.

3. Group I Results

Since children in Group I were exposed to the specific CRAFT teaching methods in both first and second grades, they constitute the main experimental population. The raw scores for this group on the October, 1966, reading tests are shown in Table 6.7.

On the MAT in October, the mean for the SC Approach was slightly higher than the LE Approach mean on both Word Knowledge and Reading. The differences were small, amounting only to one point of raw score, and not significant. Within the SC Approach the PV Method slightly surpassed the BR Method on both subtests by about two points. Within the LE Approach the LE Method was slightly ahead of LE-AV on both subtests. Girls had a slight advantage over boys in Word Knowledge in all methods except BR. On the Reading subtest, girls had a substantial advantage over boys in PV, LE, and LE-AV, and a slight advantage in BR.

On the New York State tests, given in October, the SC Approach means were slightly higher than the LE Approach means in Word Recognition, Reading Comprehension, and Total; but the differences were very small in comparison to the variability within approaches. PV was slightly higher than BR, and LE was slightly higher than LE-AV. Girls had higher means than boys. All of the mean differences were small enough to be of no practical consequence.

April Results

The main third-grade test was the Metropolitan Elementary, Form A, administered city-wide in April, 1967. The raw score results for Group I are shown in Table 6.8. The Arithmetic Concepts scores were collected and analyzed to check whether the method of instruction in reading had any significant relation to achievement in arithmetic.

The means for the two approaches in arithmetic are sufficiently close (SC, 23.22; LE, 23.90) so as to rule out any differential effect on arithmetic for either approach. Among the methods, BR was lower than PV by three points, a difference that is significant at the .05 level. Boys were slightly ahead of girls in BR, PV, and LE Methods, and the sexes were approximately even in LE-AV. The differences between pairs of means, however, are too small to be significant at the .05 level.

Turning to the reading subtests, on Word Knowledge the mean for the LE Approach was 0.7 points higher than that for the SC Approach, a difference that falls far short of significance. On the Reading subtest the mean for the LE Approach was also slightly higher (LE, 18.81; SC,17.62) and this difference, although only a little more than one point, is significant at the .01 level (by t-test).

Adjusted Means

As a preliminary to obtaining adjusted means, the first-grade pretest, second-grade posttest, and the MAT third-grade April reading tests were intercorrelated. The resulting matrices are shown in Table 6.9. From these correlations, two sets of adjustments were obtained. One set involved adjusting the CRAFT 3 tests on the basis of four first-grade pretests. The other adjustments were based on the three Metropolitan CRAFT 2 posttests. The multiple regression equations are shown in Table 6.10. The adjustment by pretests minimizes any residual effect of initial differences in readiness, and the resulting scores represent the cumulative effects of three years of learning. The adjustment by CRAFT 2 posttests partials out the differences in achievement present near the end of second grade, and therefore shows more clearly any differences in learning during the third grade. The two sets of adjusted scores are shown in Table 6.11.

Adjustment by Pretests. On Word Knowledge, there was a very small difference (0.63 point) favoring the LE Approach over the SC Approach. The standard deviations were large, almost as large as the means. On the Reading subtest there was a small difference favoring the LE Approach (1.90 points). Within the SC Approach PV was higher than BR on Word Knowledge by 5.23 points, a substantial difference, and PV was also higher than BR on Reading, by 2.26 points. Within the LE Approach, LE-AV was ahead of LE by 2.74 points on Word Knowledge, while LE was ahead of LE-AV by 2.92 points on Reading. Comparing the four methods, PV was the highest on Word Knowledge, and BR was lowest; while on Reading LE was highest and BR was lowest.

Adjustment by CRAFT 2 Posttests. On Word Knowledge the LE Approach was ahead of the SC Approach by 1.99 points, a difference that is not statistically significant at the .05 level. This is also larger than the raw score difference and the difference adjusted by pretests by about two points, indicating that the LE children made more progress during the third grade than the SC children in Word Knowledge.

On the Reading subtest there was a difference in means of 2.84 points favoring the LE Approach over the SC Approach, a difference which is significantly different at the .01 level. This is larger than the difference adjusted by pretests but not larger than the raw score difference. Thus, the two approaches were not significantly different on Reading either in total three-year achievement or in third-grade achievement.

Within the SC Approach the PV Method was ahead of the BR Method on Word Knowledge by 3.61 points and on Reading by 1.47 points; for the former P is less than .05 and significant (two-tailed test), while the latter is not significant. The difference for the posttest adjustment was smaller than it was on the pretest adjustment, for both subtests, indicating that it took place mainly before the third grade.

Within the LE Approach, there was a difference on Word Knowledge of 3.38 points favoring LE-AV over LE which, however, was not significant. Similarly, on Reading the LE advantage of 2.19 points over LE-AV was not significant. The differences between the two LE methods in third grade fall within the range of chance variations.

Grade Equivalents

The mean raw scores for the main CRAFT population have been shown in unadjusted raw scores (Table 6.8), and with two kinds of adjustments (Table 6.11). The grade equivalents corresponding to these three sets of means are shown in Table 6.12. It should be noted that for April the norm is 3.7, and the New York City norms used are about one month more lenient than the national MAT norms.

Looking first at the results of the total CRAFT population, their mean grade equivalent was 3.4 on both Word Knowledge and Reading. The average retardation of three months is not large considering the disadvantages affecting the educational adjustments of these children. Small differences of one month in the total population adjusted means are attributable to rounding errors.

Looking next at the unadjusted results of the two approaches, the LE Approach means are one month higher than the SC Approach means on both Word Knowledge and Reading. The advantage, while slight, and not statistically significant, is a reversal of the comparative standing at the end of the first grade.

The adjustment by first-grade pretests did not change the mean grade equivalents for Word Knowledge, but increased the LE lead on Reading to two months. The same is true for the adjustment by second-grade posttests. The partialling out of reading readiness slightly increased the LE lead in reading; partialling out differences in achievement at the end of second grade also slightly increased the LE lead.

Table 6.12

Mean Grade Equivalents for MAT Posttests (April, 1967) for Children with First through Third-Grade Data

Method and Approach	Unadjusted		Adjusted by CRAFT 1 Pretests		Adjusted by CRAFT 2 Posttests	
	W K	Rdg.	W K	Rdg.	W K	Rdg.
SC Approach						
BR: Boys	3.3	3.4	3.1	3.3	3.1	3.3
Girls	3.3	3.4	3.3	3.3	3.2	3.3
Total	3.3	3.4	3.1	3.3	3.2	3.3
PV: Boys	3.3	3.4	3.3	3.4	3.3	3.3
Girls	3.6	3.5	3.9	3.6	3.6	3.5
Total	3.4	3.4	3.6	3.4	3.4	3.4
Total Skills-Centered						
Boys	3.3	3.4	3.2	3.3	3.3	3.3
Girls	3.4	3.4	3.6	3.4	3.3	3.4
Total	3.3	3.4	3.3	3.4	3.3	3.4
LE Approach						
LE: Boys	3.2	3.4	3.1	3.4	3.1	3.5
Girls	3.6	3.7	3.7	3.9	3.6	3.9
Total	3.3	3.5	3.3	3.7	3.3	3.7
LE-AV: Boys	3.4	3.4	3.3	3.5	3.6	3.4
Girls	3.6	3.5	3.9	3.5	3.7	3.6
Total	3.6	3.4	3.6	3.5	3.6	3.4
Total LE						
Boys	3.3	3.4	3.2	3.5	3.3	3.4
Girls	3.6	3.6	3.7	3.7	3.6	3.7
Total	3.4	3.5	3.4	3.6	3.4	3.6
All Methods						
Boys	3.3	3.4	3.2	3.5	3.3	3.4
Girls	3.6	3.5	3.6	3.5	3.6	3.5
Total	3.4	3.4	3.4	3.5	3.3	3.4

The analyses of variance shown in Table 6.31 revealed that none of the differences among approaches or methods was significant after the pretest adjustment. Therefore, one can conclude that for the total three-year period there were no significant differences in reading achievement. On the third-grade posttests, the LE Approach had slightly higher means than the SC Approach but the differences were not significant for unadjusted scores or scores adjusted by pretests. Using the posttest adjustment the LE Method and Approach were significantly higher on the Reading subtest and the LE-AV method was significantly higher on Word Knowledge subtest. These results indicated faster progress by the children in the LE method and approach during the third grade.

In summary, the SC methods were slightly and non-significantly ahead at the end of second grade, the LE children showed greater gains during third grade, and the three-year results are about even.

Sex Differences

In CRAFT 1, differences between boys and girls were small, inconsistent, and lacking in significance both on the pretests and on the posttests. On the CRAFT 2 posttests some sex differences began to emerge.

Unadjusted Scores. The means have been presented separately for boys, girls and total in Tables 6.7, 6.8, and 6.11. In the discussion thus far only the totals have been considered. A look at the tables, however, discloses some large and significant sex differences.

On the April unadjusted raw scores for Word Knowledge and Reading (Table 6.8), the two sexes had approximately equal means in the BR Method, but in the other three methods girls were ahead by two to four points. For all methods combined girls were ahead by 2.26 points in Word Knowledge, and by 1.42 points in Reading; the former difference amounts to three months of grade score and the latter to one month. The largest difference between boys and girls was in the LE Method, with girls ahead by four points of raw score and four months of grade score.

Adjusted Scores. In Tables 6.11 and 6.12 it is evident that the effect of the adjustments was to increase the differences favoring girls. The difference favoring girls over boys on the pretest adjustment in the LE Method was increased to eight points of raw score and six months of grade score in Word Recognition, and five points and five months in Reading. The difference favoring girls in the LE

Method was almost as large in the posttest adjustment. Girls also surpassed boys by six months on Word Knowledge adjusted by pretests in the LE-AV and PV Methods.

In Reading, the pretest adjustment gave girls a lead of five months in the LE Method, and the posttest adjustment gave them a four-month advantage. On the other hand, grade equivalents in both adjustments were equal for boys and girls in the BR Method. In PV, girls had an advantage of two months for both adjustments. In LE-AV the sexes had equal grade scores on the pretest adjustment but girls had a two-month advantage on the posttest adjustment.

Since boys and girls were equal on the first-grade pretests and posttests, but girls were ahead in three of the methods by the third grade, the differences developed during the second and third grades. The fact that differences were increased by the adjustments indicates that girls tended more than boys to utilize their learning aptitudes in second and third grades.

Effect of Kindergarten Experience

The number and per cent of children who did and did not have kindergarten experience are shown in Table 6.13. The very small groups who had only a little kindergarten, or who had other preschool experience in addition to kindergarten, have been excluded. Approximately three-quarters of Group I had full kindergarten, a higher percentage than for the total first-grade population. The percentages varied from a low of 62.9 per cent for BR girls to a high of 95.6 per cent for LE-AV girls.

The findings favoring children with kindergarten experience over children without such experience was continued, for the most part, through the third grade. When all children were compared irrespective of approach or method (Table 6.14) the kindergarten group had slightly higher means, which, when converted into grade equivalent scores (Table 6.15) amounted to a superiority of one month on both Word Knowledge and Reading. Children in the LE Approach with kindergarten experience also did better than the non-kindergarten population in the same approach. Differences here amounted to five months on Word Knowledge and three months on Reading, both differences being significant at the .01 level. When children are further compared by method, kindergarten children in the BR, LE, and LE-AV Methods did better than children without kindergarten experience. For children in the LE group the difference was significant on both subtests at the .01 level.

On the other hand, non-kindergarten children in the PV classes did better than the kindergarten group on both Word Knowledge and Reading, and these differences, while not significant, were substantial enough to offset advantages held by BR Method kindergarten children, so when comparisons are made using the total SC population the non-kindergarteners have higher mean and grade equivalents on Word Knowledge and similar scores on Reading. Thus in CRAFT 3 we find the first evidence of non-kindergarten children doing as well, and occasionally better than the kindergarten group.

Looking at the grade equivalent scores for all of the methods it can be noted that means and grade equivalents for the PV non-kindergarten group rank first on the Word Knowledge subtests, followed by LE and LE-AV kindergarten children, LE-AV non-kindergarten, BR and PV kindergarteners, BR non-kindergarten children, and finally LE non-kindergarteners. Similar rankings can be found for results on the Reading subtest, although LE children with kindergarten experience rank ahead of PV children without such experience.

Comparisons of scores for boys and girls are also given in Table 6.14. For all methods combined, the boys did about equally well with or without kindergarten on both Word Knowledge and Reading. On the other hand, girls with kindergarten experience did generally better than girls not having this experience.

In summary, kindergarten children in the LE classes continued to maintain their advantage over the non-kindergarten group, whereas the advantages held by the SC kindergarten children through the second grade were not maintained by the end of grade three.

Early Readers

Of the children who had been identified as early readers at the beginning of first grade, 40 were located in third-grade classes and were divided almost equally between the two approaches. The unadjusted raw score means for the two approaches are shown in Table 6.16. On the October MAT the two groups were approximately equal on Word Knowledge and the children in the SC Approach had a lead of four points in Reading, corresponding to three months of grade score. On the New York State tests, also given in October, the SC children were slightly ahead on both subtests and total. However, on the April MAT, the LE Approach means surpassed the SC Approach means by 5.57 points in Word Knowledge and by 3.74 points in Reading; although the t's are not significant for any of these comparisons because the number of cases is small, the trend was for early readers in the LE Approach to show accelerated gains between October and April.

These comparisons become clearer when expressed in terms of grade equivalents, as shown in Table 6.17. The New York State tests are omitted since they do not have grade norms. Since the October MAT was Primary II and the April MAT was Elementary, raw scores of the two testings are not directly comparable but grade equivalents are.

On the October MAT the early readers in both approaches had means slightly above the October norm, with the grade scores of both groups at 3.3 on Word Knowledge, and the SC group ahead on Reading by three months. On the April tests both groups had arithmetic means at the norm of 3.7. The SC group had means of 4.1 in both reading subtests, four months above the norm, and indicating gain at better than an average rate since the October testing. The LE group had means of 4.7 in Word Knowledge and 4.6 in Reading, an improvement of 1.4 years in Word Knowledge and 1.8 years in Reading from October.

When the early readers are compared with the total population and within approaches, there are significant differences favoring early readers on all subtest comparisons for tests taken in October and April (Table 6.18) and all but one of these is significant at the .01 level. Scores for the MAT tests are converted into grade equivalents in Table 6.19. The October test results indicate that early readers had grade scores ranging from 2.9 to 3.3, as opposed to 2.4 to 2.6 for the total group, an eight month advantage on Word Knowledge and a five month advantage on Reading. The early readers achieved slightly above national norms on Word Knowledge and slightly below national norms on Reading.

By April the early readers had increased their advantage over the total population. This differential was most pronounced in the LE Approach, where the difference favoring early readers was 1.4 years on Word Knowledge and 1.2 years on Reading. Since the differences between early readers and total group in the SC Approach was somewhat lower than that, the difference between early readers and the total population was similarly reduced, becoming 1.1 years on Word Knowledge and .8 year on Reading.

Table 6.20 summarizes the difference between the early readers and the total population through the three years of the study and indicates that early readers not only achieved higher readiness scores than the total population at the start of the study but continued to increase that advantage through the third grade.

4. Results for Group II

Group II, the third graders who had been part of the experimental population in CRAFT I but transferred out of CRAFT schools at some time between the CRAFT I posttests and the CRAFT 2 posttests, was somewhat smaller than Group I and included 267 children. Their results are shown in Tables 6.21 through 6.25. On the October reading tests (Table 6.21) the SC means were higher than the LE means or both subtests of the MAT and both subtests of the New York State test. Girls had higher means than boys in both approaches and in three of the four methods. In LE-AV, however, the slight and non-significant differences were in favor of boys on the two comprehension subtests and in favor of girls in the two measures of word recognition.

The unadjusted means for the April MAT are shown in Table 6.22. The means for the total Group II are not significantly different from the corresponding means for Group I. The LE Approach was slightly higher on Arithmetic, while the SC Approach had slightly higher means on Word Knowledge and Reading. None of the differences was significant.

The April MAT reading scores were adjusted by first-grade pretests and the results are shown in Table 6.23. For total groups, the SC Approach had slightly higher means than the LE Approach. Among the methods PV had the highest means, followed by LE-AV, BR, and LE. None of these differences was statistically significant.

Girls had higher means than boys in all comparisons by method and approach, with the largest differences in the PV and LE-AV methods. The 37 girls who had been in the PV Method had adjusted mean grade equivalents of 3.6 in Word Knowledge and 4.1 in Reading, surpassing the norm by four months in Reading. For all methods combined, girls surpassed boys by 3.07 points in Word Knowledge and by 5.66 points in Reading. The latter difference corresponds to a difference of six months in grade score and is significant beyond the .001 level. The sex differences, then, were larger and more significant than any of the differences between approaches or methods.

The distribution of Group II children in regard to kindergarten experience is shown in Table 6.24. For all methods combined, 56.62 per cent of Group II had attended kindergarten. This percentage is substantially lower than the 74.27 per cent for Group I. The percentages varied among the methods, from 67 per cent in LE to 51 per cent for BR, and the LE Approach had 61.59 per cent as compared to 51.49 per cent for the SC Approach.

The April MAT scores for the kindergarten-no kindergarten comparisons are shown in Table 6.25. All of the differences were small and in favor of those with kindergarten experience.

5. Results for Group III

Group III contains the children located in regular third-grade classes who had taken CRAFT pretests in first grade but who had transferred to other schools before the first-grade posttests. Altogether 237 children had left the CRAFT classes before the first-grade posttests, and 96 of them with April MAT third-grade scores were located. October scores were found for 79 children. The statistical details for these children are shown in Tables 6.26 through 6.30.

The October test results for Group III are shown in Table 6.26. In comparison with Group I (Table 6.7), Group III had total means consistently about two months lower. Because of small numbers and doubtful representativeness of the subgroups in this table, it does not seem desirable to make detailed subgroup comparisons.

The unadjusted April Metropolitan results are shown in Table 6.27 and the April results adjusted for first-grade pretests are shown in Table 6.28. Since the latter table shows the results when differences in reading readiness have been partialled out, it is the best basis for judging the third-grade achievement of Group III. All third-grade children in Groups I, II, and III were combined in the adjusting procedure.

Comparison of the Total means in Table 6.28 with those in Table 6.11 shows that Group III was substantially lower than Group I on both MAT subtests. The differences amount to 4.99 points in Word Knowledge and 3.85 points in Reading, corresponding to differences of three months and four months in grade scores. These differences are due mainly to the poor showing of Group III boys in the SC Approach, who did considerably worse than boys in the LE Approach. This is not true of Group III girls.

It may be noted that in Arithmetic, Group III did very slightly better than Group I, and the per cent with kindergarten experience in Group III (Table 6.29) was equal to that for the CRAFT I population (Harris & Serwer, 1966 a, p. 22). Thus the poorer third-grade reading scores for Group III are not explainable in terms of readiness, learning ability in arithmetic, or preschool experience.

Unadjusted means for Group III are shown for those with and without kindergarten experience in Table 6.30, but the numbers are so small and representativeness so uncertain that few conclusions can be drawn. The differences between the 53 children with kindergarten and the 36 without kindergarten were in favor of the former, but were small and non-significant.

Analysis of Variance

In an effort to determine whether statistical differences existed among Groups I, II, and III in reading achievement when the method by which they were taught was isolated, analyses of variance were carried out and the results are summarized in Table 6.31. There were no significant differences between the amount of exposure to the CRAFT Project on the Word Knowledge and Reading subtests for the BR, PV, or LE-AV Methods when the subtests were adjusted by the pretests. For the remaining method, LE, there was a significant difference at the .01 level, favoring Group I on Reading, and suggesting that LE children who remained in the CRAFT Project for the longest period of time benefitted most on aspects of reading comprehension.

Further analyses of variance were carried out to determine whether the approach or method used with boys and girls had any differentiating effect on their achievement. These findings are also summarized in

Table 6.31, and indicate that while there were differences between boys and girls on several subtests, and an occasional difference between the approaches or methods used, there were no significant interaction effects between sex and methodology. This suggests that children of either sex can achieve equally, irrespective of the method or approach by which they are taught.

CHAPTER VII

THE FIRST-GRADE REPLICATION

The CRAFT plans from the beginning incorporated the hope and plan that it would be possible not only to carry the original study through the third grade, but also to repeat the study with experienced teachers and new children. It was believed that such a replication study would come closer to a natural situation without the Hawthorne Effect (or with far less of it) and with differences in rate of learning a new teaching method eliminated as an irrelevant variable. Although the federal contract for the continuation study (CRAFT 2 and CRAFT 3) did not include funds for a replication, cooperative effort by The City University of New York and the Board of Education of the City of New York made it possible to carry the Replication Study through grades one and two. The grade one procedures and results (Replication 1) are covered in this chapter; grade two procedures and results (Replication 2) may be found in Chapter VIII.

1. First-Grade Replication Procedures

The general aim of the Replication Study was to repeat the original CRAFT study with only such changes as seemed necessary or highly desirable.

General Plan

All first-grade teachers who were in CRAFT 1 were invited to take part in the Replication Study (except those in School F which did not participate in CRAFT 2). Thirty of the original 48 teachers took part in 1965-66. Of these, 26 repeated the same four teaching methods they had used in 1964-65. In addition, a fifth method, a combination of LE-AV and PV, was developed and called the "Pilot Method." It was used by four teachers in two schools, all of whom had used either LE-AV or PV in CRAFT 1. The majority of the 18 teachers who did not take part in the replication study left for reasons other than the teaching situation (maternity, leaving the city, promotion to a supervisory position) while a minority expressed dissatisfaction either with the method they had used, or with the experimental constraints.

The distribution of classes in the five methods among the 11 schools is shown in Table 7.1. The Pilot Method operated in four classes in Schools A and B. In nine of the other ten schools there were both SC and LE Approach classes; the tenth (School I) had only two BR classes. The symmetry of the original CRAFT 1 design was absent, but in most schools a comparison could be made between the two approaches.

After a two-week readiness period, pretests were administered. Instruction in reading began the day after completion of the pretests, and continued for 140 school days. Then posttests were administered. Similarities and differences between the original and replication studies together with elements pertaining to the Pilot Method are given below.

Teaching Methods

The Pilot Method involved spending 20 to 30 minutes a day teaching word recognition according to the Phonovisual manual. The rest of the 180 minutes per day were to be used as in the LE-AV Method. The BR, PV, LE, and LE-AV Methods were taught as in the original project.

Instruments

There had been so much criticism of the original pretest battery by the CRAFT teachers as exhausting and frustrating that a shorter pretest program was used, consisting of four subtests of the Metropolitan Readiness Test. All children also took, at pretest time, a short word recognition test devised for use in this project, called the CRAFT Word Recognition Test (see Appendix). Additional experimental tests (The Macmillan Reading Readiness Test and a Visual-Motor Test) were given to a sampling of the children to collect standardization data.

Posttests were essentially the same as in the original study. The Stanford Primary I Battery, Form X, was administered to all children. The San Diego Pupil Attitude Inventory was also administered to all. A randomly selected subsample of two boys and two girls per class were given the Gilmore Oral Reading Test, the Gates Word Pronunciation Test, and the Fry Test of Phonetically Regular Words. Written compositions were obtained from all children using the same procedures as in CRAFT 1 and were scored for the individually tested subsample.

The Daily Log Form (1230 edition, the same as in CRAFT 2) was filled out for five consecutive teaching days for five months. The teachers also filled out the San Diego Teacher Attitude Scale after the children took the posttests (they had taken this twice before, at the beginning and end of CRAFT 1). The OScAR R was not used in Replication 1 since research assistant time for classroom observations was not available.

Supervision and Experimental Controls

Although the major part of the supervision provided by the assistant director and consultants during 1965-66 was devoted to the CRAFT 2 teachers, a less intensive program was carried out simultaneously for the Replication 1 teachers. The number of after-school workshop sessions was halved, and nearly all of the sessions were held on a district basis rather than centrally. The Replication 1 teachers were visited less often, and made requests for help far less frequently than they had the previous year. In consequence of the reduced amount of after-school activity required, the stipend for the Replication teachers was reduced to $100.

Since the Replication 1 teachers retained the reading materials (and the LE-AV teachers, the equipment) supplied during CRAFT 1, problems of lack of materials or delayed deliveries were far less frequent than in the first year. On the whole, the morale of the Replication 1 teachers seemed better than it had been during the original study.

The Daily Logs provided a check on use of time, and provided scores differentiating the teaching methods. The San Diego Teacher Attitude Inventory also provided information on differentiation of the teaching methods.

The group pretests and posttests were administered by the Corrective Reading teacher of the school. The individual tests were administered by the district reading consultant. All tests were hand-scored by the central research staff. The Log forms were averaged as in CRAFT 2, using an IBM 1230 Visual Scanner to get data cards.

Statistical Treatment

The statistical treatment was modeled very closely after that of CRAFT 2. Means were first computed for the five methods on the Metropolitan Readiness subtests. By inspection the differences seemed large enough to make it advisable to adjust the posttests to minimize the effects of initial differences in readiness.

A correlation matrix of 17 variables was computed, including pretests and posttests. The four Metropolitan subtests and the number of full days of kindergarten had significant $\underline{r}$'s with the Stanford posttests and were selected as predictor variables. Using these five variables, a multiple regression equation was obtained separately for each of the Stanford subtests and also for each of the individual measures obtained for the subsample. For each posttest a predicted score was obtained for each pupil, and from these a predicted mean was obtained for the class. The disparity between the predicted mean and the obtained mean was used to find the adjusted class mean. Thus, if the obtained class mean was 22.0 and the predicted mean was 21.0, the difference of 1.0 was added to the obtained mean to get an adjusted mean of 23.0. When the predicted mean was higher than the obtained mean, the adjusted mean was lowered; when the predicted mean was lower than the obtained mean, the adjusted mean was raised.

The adjusted class means were combined to get means by method and approach; these were then tested for significant differences using analysis of variance and, where indicated, t tests.

Two intercorrelation matrices were then computed, including the adjusted posttests, the pretests, and all other variables that seemed relevant. The first matrix, involving 40 variables, included only the three main Log categories. The second, with 23 variables, included all Log variables and adjusted posttests. These matrices were inspected for significant r's with the posttests, and variables with such r's were selected for additional analyses.

The Teachers

All but two of the 30 teachers were regularly appointed; two LE teachers were "permanent substitutes." Educational level, shown in Table 7.2,was reasonably well balanced between the two approaches and among the four methods. In age (Table 7.3) the LE-AV teachers were the oldest, with the Pilot teachers next; the range within each method was at least 24 years. Similarly, the LE-AV teachers had most years of teaching experience, with the Pilot teachers next (Table 7.4). The LE-AV group also had the highest mean and median for years of first-grade experience, with the other four groups fairly well balanced (Table 7.5).

2. Pretest and Posttest Results

Pretest Results

The means and standard deviations on four subtests of the Metropolitan Readiness Tests of the children in the two approaches and five methods are shown in Table 7.6. Children who transferred out before the posttests were given are not included in this or subsequent tables in this chapter. By inspection the differences on the various subtests were large enough to make it desirable to control pretest differences by an adjusting procedure. The SC Approach had higher means on Word Meaning and Matching; the LE Approach had higher means on Listening and Alphabet. The BR Method had the highest mean on Word Meaning and Listening; the Pilot Method had the highest mean on Matching and Alphabet.

The Replication 1 population could be compared with the CRAFT 1 population on two of the four subtests (Table 7.7). On both, the Replication means were higher: on Word Meaning, Original mean 5.25; Replication, 6.04; on Listening, Original, 6.79; Replication, 8.49.

The Replication means were also closer to the mean for the normative population on both subtests. However, as compared to the normative population the Replication population was below average on all four subtests, with approximate percentiles of the means as follows: Word Meaning, 20th; Listening, 44th; Matching, 27th; and Alphabet, 32nd.

The four Metropolitan subtests, three measures of preschool attendance, and ten posttest measures were correlated in a 17 x 17 matrix (Table 7.8). Most of the r's with the Stanford posttests were in the .30's and .40's. Of the four pretests, the Alphabet subtest had the highest correlations both with the Stanford subtests and with the individually administered oral reading tests.

Of the three measures of preschool attendance only Number of Full Days in Kindergarten had statistically significant correlations with the posttests, and those were very low. The other two measures had zero values for most of the children and this may have been the reason for their non-significant r's with posttests.

Correlations with the individual oral reading tests, given to a subsample of four children per class, were about equal to those with the Stanford for the Alphabet subtest, but were very low for the other three readiness subtests. The r's were lowest with the Fry Test of Phonetically Regular Words and highest with Gilmore Accuracy.

Correlations of pretests with the San Diego Pupil Attitude Inventory, a posttest measure of interest in reading, were significant but quite low, in the .20's.

Posttest Results for the Total Population

The unadjusted raw score means for the Stanford posttests are shown in Table 7.9; these means are based on pupils, not classes. The means for the four original methods and the two approaches are quite close together on the five subtests; the means for the Pilot Method are highest on the three reading subtests (Word Reading, Paragraph Meaning, Word Study Skills) and Spelling, and about equal to the others on Vocabulary (oral vocabulary). The corresponding means using the class as unit are very similar (Table 7.10).

Multiple regression equations were computed using the four Metropolitan Readiness subtests and Full Days of Kindergarten as predictor variables; the equations are shown in Table 7.11. The Metropolitan subtests all had significant weightings, but kindergarten attendance had zero weight. Apparently any beneficial effect of kindergarten was incorporated in the pretest scores, and when those were partialled out there was no residual kindergarten effect.

The adjusted results for the Stanford subtests, computed from the scores of the individual pupils, are shown in Table 7.12. For the four original methods the changes were small; BR means were lowered slightly on four tests, PV means rose on all five tests. LE means were lowered on four tests, LE-AV means were raised on all four subtests. The Pilot Method improved substantially on all subtests except Vocabulary, increasing the differences between the Pilot Method and the four original methods.

To correspond with the statistical procedure of the original CRAFT study, adjusted means for methods and approaches were also computed using the class as the unit. After a predicted score was obtained from the multiple regression equation, a mean of predicted scores was obtained for each class. The difference between obtained mean and predicted mean was used to adjust the obtained means. This procedure was followed for each Stanford subtest and also for the tests given to the subsample of four children per class.

The adjusted Stanford means based on the class as the unit are shown in Table 7.13. The differences from the means utilizing the pupil as the unit (Table 7.12) are very small, in most cases less than one-fifth of a point.

An analysis of variance was computed for each adjusted Stanford subtest for the two approaches; one of these for Paragraph Meaning is shown in Table 7.14. None of these analyses disclosed a difference significant at the .05 level. There were, then, no significant differences between the SC Approach and the LE Approach on the adjusted Stanford subtests.

An analysis of variance was also computed for each adjusted Stanford subtest for the five methods. Four of these analyses did not show significant treatment differences, but the fifth, for Word Study Skills (Table 7.15), disclosed a difference significant beyond the .01 level. This was obviously due to the considerably higher mean for the Pilot Method on this subtest. In Word Reading, Paragraph Meaning, and Spelling, the advantage of the Pilot Method was not large enough to show a significant difference in the analysis of variance.

The grade equivalents corresponding to the adjusted means for the five methods are shown in Table 7.16. The differences in grade scores are much smaller than the differences in adjusted raw score, shown in Table 7.13, due to the fact that one month of grade score usually covers three adjacent raw scores in the norms for this test. The Pilot Method had means of 1.8 in Spelling and Word Study Skills (equal to the norm) and 1.7 in Word Reading, being the highest on those three subtests. On Paragraph Meaning the LE and Pilot Methods were similar at 1.6, just one-tenth of a grade ahead of the other three methods. On Vocabulary the PV and LE-AV Methods were equal at 1.5 and the other three methods were one-tenth lower.

Comparison of Original and Replication First Grade Results

The main reason for conducting the Replication Study was to attempt to eliminate, or diminish as much as possible, two possible sources of error. The first was Hawthorne Effect, the generally facilitating influence of knowing that one is taking part in something new and experimental and that results are to be carefully measured. It was expected that Hawthorne Effect, if present during the original study, would wear off by the end of the first year or early in the replication year. The second was rate of learning to teach by a new method. It was hypothesized that the LE Approach was learned more slowly than the SC Approach and that the LE results might show a differential gain during replication.

The Replication 1 means are compared with the CRAFT 1 means in Tables 7.17 to 7.21 based on adjusted class means. On Word Reading (Table 7.17) the LE and Pilot Methods gained, LE-AV remained approximately the same, and PV and BR lost. Analysis of variance reveals a difference between Pilot and other methods significant at the .05 level, but no significant difference between the two years.* On Paragraph Meaning (Table 7.18) the LE and LE-AV Methods gained slightly and the other three methods lost slightly, but none of the differences was significant. On Vocabulary (Table 7.19) the five methods had very similar means in both years and none of the differences were significant. On Spelling (Table 7.20) the Pilot teachers had a substantial lead over the other four methods, significant at the .01 level. However, they had an even greater lead in CRAFT 1 than in Replication 1, and their Replication 1 mean was lower than their mean the year before. In Spelling the LE, LE-AV, BR, and Pilot Methods all had lower means during the second year, and only PV had a slight gain; differences between the two years were not significant. Word Study Skills (Table 7.21) was the only subtest which showed both a significant difference between the Pilot Method and the other methods, and also a significant change from first year to second, with PV and Pilot gaining about three points each, and BR losing nearly eight points.

To summarize the above findings, the Pilot Method was significantly superior to the other four methods on Word Reading, Spelling, and Word Study Skills. However, the Pilot teachers had been either PV or LE-AV teachers in CRAFT 1, and only in Word Study Skills did they show a significant gain using the Pilot Method as compared to their original method. When their adjusted grade score means are compared for the two years (Table 7.22) it is evident that they did equally well both years in Paragraph Meaning, did slightly better the first year in Vocabulary and Spelling, and did better the second year only in Word Reading and Word Study Skills. The generally superior results of the Pilot Method, then, seem to be due more to being taught by above-average teachers than to the method itself, although there was some improvement in word recognition skills. The results of the second year of the Replication Study will help to determine how general and how lasting the good effects of the Pilot Method were.

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*The Pilot teachers had taught PV or LE-AV in CRAFT 1; all other teachers taught the same method both years.

Results of the San Diego Pupil Inventory

On the San Diego Inventory of Pupil Attitude the means for the approaches and methods all fell within a very narrow range, 18.35 to 19.09 (Table 7.23). Even when computed with the child as a unit, the largest difference (between LE and BR) is not significant.

In CRAFT 1 the SD Pupil Inventory means were as follows: BR, 17.20; PV, 14.98; LE, 15.87; LE-AV, 15.58. The differences between BR and the other three methods were significant.

It is evident, therefore, that SD Pupil Inventory scores were higher in all four methods in Replication 1 than in CRAFT 1, and that there was no significant difference among methods or between approaches in Replication 1.

Subsample Results

The subsample of four children per class was checked for representativeness by comparing subsample means with class means on the Stanford Paragraph Meaning test. In the 30 classes, 19 differences favored the class mean and 11 favored the subsample mean, well within the range of chance fluctuations from a 15-15 split (Chi-Square Test). In none of the 30 classes was the difference between subsample mean and class mean significant at the .05 level (t-tests). The subsample, therefore, is a reasonably representative sample of the Replication 1 population.

The subsample results for the individually administered oral reading tests are shown in Table 7.24. The Gilmore Oral Reading Test provided two scores, a grade equivalent for Accuracy and a raw score for Rate. Of the two, Accuracy is the more important, as Rate is of little consequence in first grade. On Gilmore Accuracy the Pilot Method was highest and above the grade equivalent norm at 2.16, the Skills-Centered Approach was approximately at the norm of 1.8 with a mean of 1.75, and the LE Approach was lowest with a mean of 1.45. Differences between methods within each approach were very small. On Rate the two Skills-Centered methods were substantially ahead of the other three methods.

On the Gates Graded Word Pronunciation Test, a list selected on the basis of word frequency, the Pilot Method was far ahead of the other methods with a mean of 11.56; second was BR with 8.08, followed by PV, LE, and LE-AV.

On the Fry Test of Phonetically Regular Words there was an even greater difference; the Pilot mean of 12.75 was far ahead of the other methods, all of which had means below 1.0.

When these means were adjusted, the only pretest that had sufficient correlations with the individual posttests to warrant partialling it out was the Metropolitan Alphabet subtest, and that was the only predictor used. The adjusted means are shown in Table 7.25. The general effect of the adjustments was to increase the differences noted among the unadjusted means. The Pilot means were raised substantially on Gilmore Accuracy, Fry, and Gates, and lowered slightly on Gilmore Rate. The BR means were raised slightly on Gilmore Accuracy and Gates, raised substantially on Gilmore Rate, and lowered slightly on Fry. The LE and LE-AV means were lowered on all four measures. However, nearly all the S.D.'s were greatly increased, so that the relative differences were not changed very much.

The effect of the adjustments, then, was to confirm the Pilot Method's lead over the other four methods on Gilmore Accuracy, Fry, and Gates, reinforcing the impression that this method was outstanding in Replication 1 in developing word recognition and oral reading skills. The SC Approach pupils achieved at grade level on these tests, while the children in the LE Approach did quite poorly on them. The greatest superiority of the Pilot Method was on the Fry Test on which both PV and Pilot Methods should have shown to advantage. However, the regular PV classes did no better than the BR and LE-AV classes. Despite evidence above that the Pilot teachers had been superior teachers in CRAFT 1 as well as in Replication 1, the outstanding results of the Pilot Method on the subsample measures do not seem to be explainable entirely on the basis of teacher superiority.

Unadjusted results for three measures based on the Writing Sample are shown in Table 7.26. On the number of running words, a measure of composition length, Pilot was highest, followed by BR, PV, LE-AV and LE in that order. The same rank order held true on number of words spelled correctly. On Mechanics Ratio, a measure of correctness of usage and punctuation, all means fell within a very narrow range.

3. Teacher Variables

Teacher Logs

It was not possible to make as thorough an analysis of the Daily Log data in Replication 1 as had been done in CRAFT 1 and 2.

An intercorrelation matrix of 40 x 40 variables was computed, which included the adjusted class means on the posttests. This matrix is shown in Table 7.27. Four Daily Log variables were included in that table and are numbered 36 to 39. The posttest variables are numbered 23 to 32.

The LE vs SC Approach scale measures the degree of agreement with one or the other of the two approaches. The only significant r between this scale and posttests is with Gilmore Rate, -.44.

time for all activities had non-significant r's with all posttests except Gilmore Accuracy and Rate, for which the r's are low and negative. Reading Activities Time has no significant r's with posttests. Supportive Activities Time has negative r's with Stanford Spelling and with Gilmore Accuracy and Rate; the r's are significant. Because of the small number of teachers in each method, r's for the separate methods were not computed.

The means for Reading Time, Supportive Time, and Total Time are given in Table 7.28. The SC teachers devoted more time to Reading than to Supportive Activities. BR teachers spent a little more time on Reading and less on Supportive than PV teachers. In contrast, the LE Approach teachers again spent substantially more time on Supportive than on Reading Activities. This was particularly true of the LE-AV teachers, who spent only 66.8 minutes per day on Reading as compared to 101.2 minutes on Supportive. Although the r's with Reading Time are not significant, it may not be a coincidence that the LE-AV Method had the lowest achievement, and also spent least time on Reading Activities.

The intercorrelations of 20 Log variables with adjusted Stanford class means on Word Meaning, Paragraph Meaning, and Word Study Skills are shown in Table 7.29. It should be noted that results of the Log analysis in CRAFT 1 had been discussed with the teachers at the first workshop meeting in Replication 1, and individual teachers probably made some changes in their use of time.

In general, there is a notable lack of correlation between Daily Log variables and reading. None of the r's with Word Reading or with Paragraph Meaning is significantly greater than zero. For Word Study Skills there is a negative r of -.41 with Experience Chart Time, a negative r of -.59 for Art Work with Reading, and a plus .42 with Phonic Activities.

Since these r's are based on the total groups of classes including all methods, some r's that might have been significant within a particular method may have been cancelled out by putting contrasting methods together.

San Diego Teacher Inventory

The Replication 1 teachers filled out the San Diego Teacher Inventory three times: at the beginning of CRAFT 1, at the end of CRAFT 1, and at the end of Replication 1. At the beginning of CRAFT 1 the teachers in all methods showed a slight preference for the Basal scale and differences among the four methods were not significant. By the end of CRAFT 1 the BR and PV teachers scored higher on the Basic scale and lower on the Individualized and Language-Experience scales, while the LE and LE-AV teachers scored lower on the Basal scale and substantially higher on the Individualized and Language-Experience scales.

By the end of Replication 1, this trend was even more marked (Table 7.30). Of 18 comparisons within the original four methods 16 showed differences of significant size. The BR and PV Groups showed strong agreement with the Basal scale, moderate disagreement with the Individualized scale, and strong disagreement with the Language-Experience scale. The LE and LE-AV groups showed strong agreement with the Language-Experience scale, agreement with the Individualized scale and slight disagreement with the Basic scale. Differences within each approach were small and not significant.

Very interestingly, the Pilot group, whose method was a combination of Language Experience, Audio-Visual, and Phonovisual features, gave San Diego responses typical of the teachers in the LE Approach. They scored even higher than LE and LE-AV on the Language-Experience scale, and their means on the other two scales were very close to the LE and LE-AV means.

Teacher Competence Rating

The rating of teacher competence had r's with the posttests that were generally positive but quite low. Four of the r's, however, are significantly greater than zero for Stanford Word Reading and Word Study Skills, Gates, and Fry. Thus there are significant r's with the teacher's results in developing word recognition skills, but not with comprehension or oral reading of meaningful material. It is not surprising, therefore, to find that the mean competence rating (Table 7.31) was highest for the Pilot teachers.

Other Teacher Variables

Several other teacher variables are included in Table 7.27. Teacher age has no significant r's with posttests. The same is true of total number of years of teaching experience and years of first-grade experience. Teacher absence also had no significant r's with posttests. Class size had one significant r, -.43 with Stanford Vocabulary, which is not a reading test.

4. Other Variables

Community Variables

Two measures based on census tract data were included in Table 7.27: Median Years of Adult Education, and Median Income. Since these measures were based on the school's neighborhood they were the same for all classes in a particular school. This should decrease the chances of obtaining significant r's. Nevertheless, Median Education shows significant r's with Word Study Skills, Gilmore Accuracy, Gates, and Fry, but not with Paragraph Meaning. Median Income is correlated .42 with Gilmore Rate, but has no other significant r's.

In view of the positive r's between neighborhood education and posttests, it was a fully justified precaution to have both a Skills-Centered Method and a Language-Experience Method in each school as originally planned in CRAFT 1.

Pupil Variables

A number of pupil variables may be found in Table 7.27. The four Metropolitan Readiness subtests had been partialled out, so they should show non-significant r's with adjusted posttest means. This is generally true, since only five of 40 r's are significant. The child's chronological age has positive r's with Stanford Word Reading, Vocabulary, and Word Study Skills; this is probably an artifact of the adjusting process. It is interesting that with differences in readiness partialled out, age emerges as a significant variable. Fortunately there were no significant age differences among the method groups.

As expected, the amount of pre-first-grade school experience had no significant r's with adjusted posttests. The adjustment process equates the children for readiness, and any benefits from preschool experience seem to be shown in large measure in higher readiness scores.

The CRAFT Word Recognition Test was a short, 10-item test that was used in place of the Detroit Word Recognition Test to locate early readers in Replication 1. The results showed this to have been a mistake, as the test had poor reliability and did not have a significant r with any of the reading posttests. It has not been possible to do a study of early readers in Replication 1 because the test that was to be used in identifying them proved to be inadequate.

A final pupil variable is Pupil Absence. Absence rates were generally low and very much alike for the five methods. While nine of the 10 r's with posttests are negative, they are all very low and non-significant.

CHAPTER VIII

THE SECOND-GRADE REPLICATION

During 1966-67, while the third grade follow-up data were being collected, the Replication 1 children were taught by second-grade teachers who had been in CRAFT 2 the preceding year. The plan was to stay as close to the CRAFT 2 procedures as possible.

1. Replication 2 Procedures

The Schools

The schools were the same as in Replication 1 except that School D dropped out, leaving 10 of the original 12 CRAFT 1 schools. The distribution of classes by method in Replication 2 is shown in Table 8.1. In comparison to the 30 classes in Replication 1, there were 25 classes in Replication 2, divided among the methods as follows: BR, 6; PV, 5; LE, 5; LE-AV, 5; Pilot, 4. The Pilot Method operated in two schools as in Replication 1. In seven of the eight remaining schools there was at least one SC class and one LE class.

The Pupils

By the time the Replication 2 posttests were given in April, the mean class size was 27 pupils in the entire project and in each of the four methods. However, additional pupils had left during the year since the Replication 1 posttests. They had been replaced by children transferring into the school, and by a few children who were repeating the grade. The distribution of Replication children (the experimental population, who were in project classes taught by a specific method from first-grade pretests through second-grade posttests), children who entered project classes at some time after the first-grade pretests, and holdovers, is shown in Table 8.2.

For the entire project population of 695 children there were 405 Replication children. These comprised 58.3 per cent of the second-grade children. The per cent of Replication children was fairly even in the PV, LE, LE-AV, and Pilot Methods, ranging between 61.4 and 67.9 per cent. In BR, however, only 43.8 per cent of the final second-grade pupils were Replication children.

The distribution of Replication and non-Replication children by method and school is shown in Table 8.3. The mean number of Replication children per class was only 12.3 in the BR Method, while the other methods had means between 16.8 and 18.0.

The Teachers

The 38 second-grade teachers in CRAFT 2 were invited to continue, if possible, in Replication 2. However, there were only 30 first-grade classes in Replication 1, and these diminished to 25 second-grade classes in Replication 2. School D withdrew from the study at the close of the 1965-66 year, and in other schools the pupil attrition in a particular method necessitated the consolidation of two classes into one. In the Pilot Method there were enough pupils to maintain four classes, but only three second-grade teachers were available who had taught by the PV or LE-AV Method in CRAFT 2. A teacher who had taught the Pilot Method in Replication 1 volunteered to teach by the same method in Replication 2. This was, then, her third year in the project: CRAFT 1, Replication 1, and Replication 2. Twenty-one of the other 24 teachers were repeating the method they had used in CRAFT 2. The class taught by the former first-grade teacher is included in all of the analyses below except the comparisons of Replication 2 with CRAFT 2 results, in which her class had to be omitted because she had not taught in CRAFT 2.

Means and S.D.'s for such teacher characteristics as age, total years of experience, and years of experience in second grade, are included in Table 8.4. None of these characteristics was significantly correlated with achievement in Replication 2.

The Instruments

A city-wide testing with the MAT Primary I Word Knowledge and Reading subtests took place in October, 1966, under the usual conditions of administration by the classroom teachers. Scores for this testing were obtained and results may be found in the tables of means and _r_'s.

In April, 1967, the Metropolitan Advanced Primary, Form A, was administered. The subtests on Word Knowledge and Reading were used on a city-wide basis with separate answer sheets which were scored by Harcourt, Brace and World Co. The subtests on Word Discrimination, Spelling and Arithmetic were also given (in a hand-scored edition) during the same week in Replication 2 classes, and were subsequently scored by research assistants. The San Diego Pupil Inventory was administered during the same week in the Replication 2 classes. A Writing Sample was also collected in Replication 2 classes. All test administration in Replication 2 classes was conducted by the corrective reading teacher in the school, with the teacher helping as a proctor.

During the same week in April a subsample of four children per class was tested individually with the Gilmore Oral Reading Test, the Gates Word Pronunciation, and the Fry Test of Phonetically

Regular Words. These tests were administered, as before, by the district reading consultant.

All children who were in the Replication 2 classes took the MAT tests. The analyses below, however, are based on the Replication children, those who were taught in CRAFT classes in first and second grades and for whom scores were available on first-grade pretests, first-grade posttests, and second-grade MAT posttests.

Additional measures on the pupils included amount of independent reading, recorded by the teachers as in CRAFT 2, ratings of eagerness to read and maturity of choices, and pupil absence.

The teachers, who had filled out the San Diego Teacher Attitude Scale at the beginning and end of the year in CRAFT 2, took this questionnaire once more after the Replication 2 posttests were completed. At about the same time they filled out a scale entitled Attitude Toward CRAFT Method which provided a measure of degree of satisfaction with the method used by the teacher in Replication 2. The teachers also filled out Daily Logs as in CRAFT 2.

Teaching Methods

The four original CRAFT Methods were taught as in CRAFT 2. The four Pilot teachers (three from CRAFT 2, one from Replication 1) had to develop the combination of second-grade PV and LE-AV procedures during Replication 2.

Supervision and Experimental Controls

The amount of time given by the consultants during Replication 2 was reduced from what it had been in CRAFT 2, and corresponded more closely to Replication 1. The number of workshop sessions was reduced and all (except one at the beginning of the year, and one in June that was more of a social function) were held locally by districts. The director and assistant director met with the consultants monthly. The assistant director visited all of the classes. In addition, each reading consultant visited the classes in her district. Class visits were followed by discussions in which suggestions for the improvement of teaching were made. As in Replication 1, the stipend for Replication 2 teachers was $100.

The project was unusually fortunate in that all four of the reading consultants who started with CRAFT in June, 1964, continued through January, 1967, which included five of the seven instructional months in Replication 2. Two of them took leaves of absence during the semester beginning February, 1967. One was replaced by a new reading consultant who was trained in the project's methodology by her predecessor, and the other was replaced temporarily by an early childhood consultant who had been with CRAFT since the beginning and was very well versed in the methodology. In the opinion of the project staff this change of consultant personnel, which took place two months before the final achievement tests were given, did not materially affect the results.

The audio-visual consultant who had been assigned to the CRAFT Project shortly before the CRAFT 2 posttests, was authorized to continue through the Replication 2 year, so that the LE-AV and Pilot teachers had the benefit of continuing AV consultant service.

The Replication 2 teachers were able to retain the materials and equipment supplied to them during the CRAFT 2 year; only workbooks needed to be replaced. Complaints of missing materials or equipment were far less frequent than in CRAFT 2, and teacher morale seemed higher.

Adherence to assigned method was checked by analysis of the Daily Logs, the San Diego Teacher Attitude Inventory, and the classroom visits by the assistant director and consultants.

Statistical Treatment

The statistical treatment was similar in general design to the Replication 1 and CRAFT 2 procedures. An intercorrelation matrix based on individual pupil scores was computed for a total of 41 first-grade and second-grade variables. The four Metropolitan Readiness subtests were used as predictor variables in multiple regression equations used to adjust the second-grade MAT subtests by pretests. The five first-grade Stanford scores were used to adjust the second-grade MAT subtests by posttests. The subsample measures were adjusted only when the *r*'s in the 41 x 41 matrix were large enough. Thus Gilmore Accuracy and the Writing Sample measures were not adjusted, while Gilmore Rate, Gates, and Fry were adjusted by pretests.

Class means and S.D.'s for approaches and methods were obtained for raw scores and adjusted scores, using the class as unit. Grade equivalents for the raw and adjusted means were also obtained.

A final intercorrelation matrix of 60 x 60 variables was then computed from which the *r*'s of the eight adjusted posttest class means with each of the other 52 variables were obtained. Means and S.D.'s were obtained by method for each of the variables in that matrix. The means and *r*'s for the 60 variables were inspected for variables other than teaching method that may have influenced the results.

2. Replication 2 Results for the Total Population

Pretest Results

Since the number of classes was smaller by five than in Replication 1, means were computed for the first-grade pretests and are shown in Table 8.5. These means differ from those computed in Replication 1 not only in number of classes, but also in the loss of a substantial number of children. The majority of the means are slightly higher than the corresponding means in Replication 1, but the differences are very small, and on the Alphabet subtest, which had the highest r's with posttests, the mean for all methods combined was slightly lower in Replication 2 than in Replication 1. The final Replication 2 population did not differ significantly from the final Replication 1 population on any of the first-grade pretests or posttests.

The first-grade posttest results for the final Replication 2 population are shown in Table 8.6. While there are minor differences from the means reported in Chapter III, the basic trends are similar. The main differences are in the Pilot means, which are somewhat higher, suggesting that there was a greater tendency for inferior readers to leave those classes during second grade than in the original four methods. The differences among methods in Table 8.6 are sufficient to justify partialling out first-grade posttests in order to emphasize the results of second-grade instruction.

Unadjusted posttest Results

The unadjusted raw score means on the MAT posttests are shown in Table 8.7. The SC Approach had higher means than the LE Approach in all five subtests. The Pilot Method had higher means than both approaches in all five subtests. Within the SC Approach, BR was ahead of PV on Reading, Word Knowledge, and Arithmetic, while PV was ahead of BR on Word Discrimination and Spelling. Within the LE Approach, LE was ahead of LE-AV on all five subtests.

Adjusted Results

The 41 x 41 intercorrelation matrix is shown in Table 8.8. Since this is based on the scores of 405 pupils, some very low r's in this table are significantly greater than zero, but many of the significant r's are not high enough to be of much use for prediction purposes. In this table the second-grade tests are numbered 26 to 41. The r's between the four Metropolitan Readiness subtests and the MAT posttests (variables 28-31) seemed to justify using the pretests as predictors. There were no r's high enough to justify adjusting Gilmore Accuracy, the San Diego Pupil Inventory, or the Writing Sample measures. Metropolitan Matching and Alphabet subtests were used for adjusting the Gates and Fry scores, and Alphabet alone for Gilmore Rate. Multiple regression equations for the MAT posttests predicted by the pretests and first-grade posttests for the total population are shown in Tables 8.9 and 8.10 respectively.

The differences between approaches and methods which are reported in the next few pages have been checked for statistical significance by analysis of variance with generally non-significant results. Details are given in a separate section below. Thus, in pointing out a difference between approaches or methods, the comment is restricted to a result of the present study and does not imply that a difference in the same direction could confidently be expected if the study were to be repeated.

The means of the MAT subtests adjusted on the basis of the first-grade Metropolitan Readiness pretests are shown in Table 8.11. Comparing approaches, the SC Approach surpassed the LE Approach by somewhat larger differences in all three reading scores and in spelling than in the unadjusted means shown in Table 8.7. The Pilot Method was slightly lower than the SC Approach in Reading, but maintained its lead over SC in the other three subtests and was well ahead of the LE Approach on all four subtests.

Within the SC Approach the effect of the pretest adjustment was to raise the PV means in all four subtests and especially in Reading; the BR means were lowered slightly except in Reading. On the adjusted means BR and PV were approximately equal in Reading and Word Knowledge, while PV showed a slight lead in Word Discrimination and Spelling.

Within the LE Approach, LE showed a lead of one to three points over LE-AV in adjusted means on all four subtests.

Looking at all five methods, on Reading, BR was highest, followed closely by PV, and then by Pilot, LE, and LE-AV. On Word Knowledge, Pilot was highest, followed by LE, PV, and BR closely bunched, with LE-AV lowest. On Word Discrimination, Pilot was highest, followed by PV, BR, LE, and LE-AV. On Spelling, Pilot was highest, followed by PV, LE, BR, and LE-AV.

The results of the adjustment using the five first-grade Stanford subtests as predictor variables are shown in Table 8.12. This adjustment partials out differences in first-grade achievement and emphasizes the effects of learning during the second grade.

The SC Approach was three points higher than the LE Approach in Reading and Word Discrimination, one point higher in Word Knowledge, and less than a point higher in Spelling. The hypothesis that the LE Approach would show greater gain than the SC Approach during Replication 2 was not supported by this evidence.

Comparing the Pilot Method with the SC Approaches, Pilot was over two points lower in Reading, less than a point higher in Word Knowledge, and over a point higher in Word Discrimination and Spelling. The Pilot Method was consistently ahead of the LE Approach, by less than a point in Reading, by over a point in Word Knowledge and Spelling, and by over four points in Word Discrimination.

Within the SC Approach BR was slightly ahead of PV in Reading and Word Knowledge, while PV was a bit higher in Spelling and over two points higher in Word Discrimination. Within the LE Approach LE was consistently higher than LE-AV, by about three points in Reading, Spelling, and Word Discrimination, and by nearly five points in Word Knowledge.

There was no support for the hypothesis that the LE-AV Method would show marked improvement in Replication 2. It should be noted that the LE Method by itself was slightly ahead of the means for the SC Approach in Word Knowledge and Spelling, and slightly lower in Reading and Word Discrimination. The LE Method was also ahead of the Pilot Method in Reading and Word Knowledge and not much lower in Spelling and Word Discrimination.

On the posttest adjustment, then, it seems appropriate to conclude that the LE-AV Method was disappointing in Replication 2 and that the other four methods were nearly equal in second-grade learning.

Grade Equivalents

The grade equivalents corresponding to the means adjusted by first-grade pretests are shown in Table 8.13. Since these are the results of two years of learning adjusted to equate for initial differences in readiness, they provide a better basis for judging the total learning in Replication 2 than either the unadjusted results, or the posttest adjustments. For ease of comparison, the Replication 2 means are shown along with the corresponding means for CRAFT 2.

Looking first at the results for all methods combined, Replication 2 was one month higher than CRAFT 2 in Spelling, two months higher in Reading, one month higher in Word Discrimination, and one month lower in Word Knowledge. In comparison with the norm of 2.7 for testing in April, the Replication 2 mean was one month below in Reading and Word Discrimination, and two months below in Word Knowledge and Spelling. Considering the disadvantaged population, these results may be regarded as highly satisfactory.

The Replication 2 SC Approach means improved over the CRAFT 2 means in Reading and Spelling, equalling the norm in Reading. In Word Discrimination the SC mean remained at the norm of 2.7. In Word Knowledge there was a loss from slightly above the norm to slightly below it.

For LE Approach comparisons, there were slight gains in Reading and Word Discrimination, no change in Word Knowledge, and a two month gain in Spelling.

Comparing the two Approaches for Replication 2, SC was higher than LE by three months in Reading, four months in Word Discrimination and two months in Word Knowledge and Spelling.
However, most of the difference

Table 8.13

Grade Equivalent Means of CRAFT 2 and Replication 2 Adjusted by Pretests
(Class as Unit)

Method and Approach	Word Knowledge		Word Discrimin.		Reading		Spelling[a]	
	CR. 2	Rep. 2	CR. 2	Rep. 2	CR. 2	Rep. 2	CR. 2	Rep. 2
SC Approach								
BR	3.0	2.5	2.7	2.6	2.6	2.7	2.6	2.5
PV	2.7	2.6	2.8	2.8	2.4	2.7	2.5	2.7
Total	2.9	2.6	2.7	2.7	2.5	2.7	2.5	2.6
LE Approach								
LE	2.5	2.6	2.5	2.5	2.4	2.5	2.3	2.5
LE-AV	2.3	2.3	2.1	2.2	2.1	2.3	2.1	2.3
Total	2.4	2.4	2.2	2.3	2.3	2.4	2.2	2.4
Pilot	2.7	2.7	2.8	2.7	2.6	2.5	2.9	2.7
All Methods	2.6	2.5	2.5	2.6	2.4	2.6	2.4	2.5

[a] National norms used

is due to the poor showing of the LE-AV Method; differences between SC means and those for the LE Method by itself are only two months in Reading and Word Discrimination, one month in Spelling, and there is no difference in Word Knowledge.

The comparison of the Pilot results in Replication 2 with results of the classes taught by the same teachers in CRAFT 2 provides an opportunity to differentiate between the effect of the specific method and the expertness of the teachers using it. It may be noted in Table 8.13 that the Pilot mean grade equivalent decreased by two months in spelling, one month in Reading and Word Discrimination, and remained constant in Word Knowledge.

Grade equivalent scores adjusted by first-grade posttests revealed results similar to those reported above.

Results for Reading Interest Measures

The results of measures that are related to the interest of the children in reading and the nature and amount of their voluntary reading are shown in Table 8.14.

On the San Diego Inventory of Pupil Attitude the means for all five methods fell within a very narrow range (17.89 to 19.34) and are not significantly different.

The scores for Books Read Completely and Books Read Partially were based on reports turned in by the teachers for a one-month period, in February and March. Since for every method the S.D. exceeds the mean on these variables, it is evident that the distributions are markedly skewed and that the means are strongly affected by the high scores of a few avid readers. For this reason the differences among methods are difficult to interpret. For example, the mean for Books Read Completely was 7.86 for PV and 2.21 for BR. However when one notes the S.D. of 11.34 for PV, the significance of this difference is questioned.

The teachers rated each child for Eagerness to Read and Maturity of Choices. The ratings for Eagerness are within a fairly narrow range, with BR being the lowest method. On maturity the range is again fairly narrow. Since the rating standards used by the different groups of teachers may not have been equivalent, small differences are of doubtful reality even if statistically significant. It may be noted, however, that BR had the lowest means on the San Diego Pupil Inventory, the number of books read, and on teacher rating of eagerness to read.

Results of the Subsample Measures

The unadjusted results of the oral reading tests given individually to a sample of four children per class are shown in Table 8.15. On Gilmore Oral Reading Accuracy, scored in grade equivalents, there was practically no difference between the means of the SC and LE Approaches. The means for all methods fell between 3.04 and 3.47, a relatively narrow range, and all methods were well above the norm of 2.7. PV had the highest mean and was four months higher than BR. LE and LE-AV were approximately equal.

On Gilmore Rate, a measure of doubtful value at second-grade level, the mean difference between the two approaches was small. The LE Method had the highest mean rate and LE-AV the lowest.

On the Gates Word Pronunciation Test the difference between the two approaches was practically nil. On the Fry Test of Phonetically Regular Words the SC Approach was three points higher than the LE Approach, due mainly to the poor showing of the LE-AV Method.

The Pilot Method was next to lowest on Gilmore Accuracy, but was highest by a substantial margin on the Gates and Fry word lists.

The Gilmore Rate, Gates, and Fry scores were adjusted using the Metropolitan Readiness Alphabet and Matching subtests. The regression equations are shown in Table 8.16 and the adjusted results are shown in Table 8.17. The trends shown in Table 8.15 are increased in terms of differences between means, but the S.D.'s are greatly increased and the relative size of the difference tends to be lessened by the adjustments.

The results for the measures based on the Writing Sample are shown in Table 8.18. On the whole, differences among methods were small in comparison to the variation within methods. The BR Method was highest in Number of Running Words, Number of Different Words, and Number of Words Spelled Correctly. The PV and LE Methods were about equal on these three measures, and the LE-AV and Pilot Methods were also approximately equal and lowest. In Number of Polysyllabic Words LE was highest, BR, PV, and Pilot were about equal, and LE-AV was lowest.

Analysis of Variance Results

One way analyses of variance were run by computer for the MAT scores adjusted by pretests and by posttests, and for the subsample measures. The results are summarized in Table 8.19. There were 16 analyses for comparison of approaches and another 16 analyses for comparisons of the five methods in Replication 2. Table 8.19 omits most of the statistical details and shows only the degrees of freedom and the _F_ value for each analysis.

The results of these analyses may be summarized very briefly: not one statistically significant difference. Consistently the variances within methods were so large in relation to variances between methods as to prevent the _F_ ratio from reaching a significant level.

Even on the Fry Test, on which the Pilot Method had a substantial-appearing lead, F fell short of significance at the .05 level.

A more complicated analysis of variance was carried out for each MAT subtest adjusted by pretests, and also adjusted for posttests. In this the Pilot Method was compared with the other methods, and a comparison was made of Replication 2 results with the CRAFT 2 results of the same teachers. An example is shown in Table 8.20 for MAT Word Discrimination adjusted by pretests and 12 analyses are summarized in Table 8.21. None of the F's, whether for differences among the four original methods, difference between Pilot and other methods, or differences between the two years, is significant for this or the other MAT subtests, whether adjusted by pretests or by posttests.

Similar analyses were made for the subsample measures. Even on the Fry Test, on which fairly large differences in means of raw scores were increased by the adjustment, the variance within methods was increased still more and the highest F value was 1.59, well short of significance. These are also summarized in Table 8.21.

Comparison of Boys and Girls*

Comparisons were made between boys and girls on several tests, including the pretest battery (Metropolitan Readiness) and the two posttests (Stanford Achievement administered at the end of Replication 1 and Metropolitan Achievement given near the conclusion of Replication 2).

Pretest results indicate uneven findings. The boys in Replication 1 had higher mean scores than girls on Word Meaning and Listening and the girls surpassed the boys on Matching and Alphabet. Several of these differences are significant (Table 8.22), especially when the total population is used for purposes of the comparisons.

Similar results are found in Table 8.23 where comparisons for boys and girls in Replication 2 are again made on the pretests. Boys show superiority over girls again on Word Meaning and Listening, except in two instances where method by method comparisons are made. Girls do better than boys on Matching and Alphabet when the total population is compared and when the sexes are compared by approaches. When children in methods are compared, PV boys do better than the girls on both of the subtests.

Because of the differences noted on the pretests, posttests results were adjusted to correct for the differences. However adjusted scores on both the Stanford and Metropolitan posttests were so similar to the raw scores that the following report excludes any reference to the adjusted scores.

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*Results for CRAFT boys and girls participating in both Replication 1 and 2 are reported here since data for the Replication 1 study were not available at the time Chapter VII was written.

Replication 1 scores for boys and girls are revealed in Tables 8.24 and 8.25. All but one of the comparisons favor the girls, although few of these differences are significant and grade equivalent differences are negligible, rarely exceeding one month.

Most of the significant differences favoring the girls are found when the total population is used, irrespective of method or approach. Here girls were better than boys on three of the reading subtests and on spelling. Converting the means on these results into grade equivalent scores, the differences are never greater than one month on the reading subtests.

Using grade equivalent scores for these same populations, the mean achievement on the five subtests for the girls was slightly higher than 1.5 and for the boys, slightly higher than 1.4. The range of these grade equivalent totals is narrow; 1.5 - 1.7 for the girls, and 1.4 - 1.5 for the boys, except in the Pilot Method.

Comparing the sexes on the basis of approach and method, girls out-scored boys in every instance except three. The reversal in scores favored the boys in the BR and PV Methods and in the SC Approach on Vocabulary. The differences, however, are not significant.

In the Replication 2 findings (Tables 8.26 and 8.27)the girls continued to maintain their advantage over boys. Mean score and grade equivalent differences indicate female superiority in all but a few instances. The differences favoring boys are slight and appear only in the LE-AV means for Word Knowledge and Reading. Differences favoring girls on the grade equivalent scores range from one month to 1.2 years, and a majority of the differences are significant.

In summary, the advantages held by girls over boys in Replication 1 were maintained and increased through Replication 2. Only in LE-AV classes did boys enjoy a higher score than girls, and these differences were slight and non-significant. These findings are similar to those for CRAFT 1 and CRAFT 2.

Comparison of Kindergarten and Non-Kindergarten Children

Children in Replication 2 classes were used in carrying out a statistical analysis for children who had and who had not attended kindergarten. Results on the Metropolitan Readiness Test (October, 1965), the Stanford Achievement Tests (April, 1966), and the Metropolitan Achievement Tests (April, 1967) were obtained. Number of children taking each set of tests were based on the Replication 2 population only and varies slightly in that the N for kindergarten children ranged from a low of 226 on the MAT results to a high of 230 on the Stanford results. Fifty-five non-kindergarten children took the two posttests and 56 took the pretests. Results of the tests are found in Tables 8.28 through 8.32.

On the pretests, shown in Table 8.28, the total kindergarten group did significantly better than the non-kindergarteners on three of the four subtests and slightly higher on the fourth. Similar advantages for kindergarten children were found when they were divided into approaches and methods, with only two exceptions. In these latter instances, the children without kindergarten did somewhat better than the kindergarten group on Word Meaning in the BR group and in the SC Approach.

Means and S.D.'s for results of the Stanford posttests can be found in Table 8.29 along with grade equivalent scores in Table 8.30. Here the findings reveal significantly higher results for kindergarten children on nearly every comparison. Only in three instances were non-kindergarten children superior, and these children were in the LE classes.

In general kindergarten children achieved at a Stanford grade equivalent level of 1.5 as compared with 1.35 for non-kindergarteners. Almost all of these differences were significant. Comparing kindergarten children by approach, the SC group scored slightly higher than the LE children on three subtests.

An analysis by methods reveals an uneven picture. In the kindergarten group LE did better on Word Reading, Paragraph Meaning; the BR children, on Vocabulary and Spelling; and the PV children, on Word Study Skills. However, non-kindergarten children in the LE classes surpassed all other groups on three of these same tests: Word Reading, Paragraph Meaning, and Spelling. These findings are contrary to those found in CRAFT 1 where the kindergarten program appeared primarily to benefit the LE children.

However, by the end of Replication 2, when the MAT posttests were given, the LE kindergarteners had surpassed the non-kindergarten group on all four MAT subtests (Tables 8.31 and 8.32) although the differences were slight.

All comparisons in Replication 2 favored the kindergarten group, sometimes by substantial margins. The SC kindergarten children, for example, averaged four months better than the non-kindergarten children in the same classes and their mean score on the four subtests approximated the national norms. The SC kindergarten children also averaged scores of two months higher than their LE counterparts, and kindergarten children in the BR classes did better than all other children.

Summarizing the findings after two years of exposure to CRAFT instruction, kindergarten children had consistently higher scores than non-kindergarten children, and those kindergarteners in the SC Approach and the BR Method had the highest means. These findings represent a reversal of findings in the CRAFT 2 study, where the LE children appeared to benefit most from kindergarten.

3. Relation of Teacher Variables to Outcomes

In order to locate variables other than teaching method that had significant relationships with the second-grade results, class means were obtained for 60 variables and a 60 x 60 matrix of intercorrelations was run by computer. Rather than presenting and attempting to analyze the entire matrix, only the $\underline{r}$'s with the MAT subtests, adjusted for pretests and posttests, will be analyzed in this report. The $\underline{r}$'s of the four MAT subtests with the 60 variables are shown in Table 8.33.

Since these $\underline{r}$'s are based on 25 classes, there are 23 degrees of freedom and the minimum $\underline{r}$ required for a P of .05 is .396. Although it was possible in CRAFT 1 and 2 to compute correlations with outcomes separately for each method, the small number of classes in Replication 2 (four to six classes per method) made it impractical to compute $\underline{r}$'s for the separate methods.

The teacher variables in Table 8.33 begin with no. 26, Teacher Competence Rating. This was the average of ratings on a one to five scale by the assistant project director and the district reading consultant. None of the $\underline{r}$'s for this variable are significant, indicating that teacher competence as perceived by the raters during classroom visits and discussions with the teachers is not significantly associated with pupil achievement.

Similarly low and non-significant correlations are found for most of the teacher variables. There are no significant $\underline{r}$'s for teachers' age, total years of teaching experience, experience in second grade, class size, competence rating, teachers' absence, or ethnic similarity between teacher and pupils. Teacher competence ratings are shown in Table 8.34.

The San Diego Teacher Attitude Inventory

The three scales of the San Diego Teacher Attitude Inventory produced just one significant $\underline{r}$, that between the Individualized scale and Spelling adjusted by pretests. Since it seems doubtful that classes which spent a large amount of time on individualized reading were given more spelling drill than in the other methods, this result suggests that those classes which engaged in a substantial amount of independent reading may have made incidental gains in spelling.

The results of the S-D Teacher Inventory are shown in Table 8.35. The SC Approach teachers scored significantly higher on the Basic scale than on the Individualized and Language-Experience scales. BR teachers scored somewhat higher on Individualized and Language-Experience scales than the PV teachers did. The teachers in the LE Approach scored equally high on the Individualized and Language-Experience scales and were significantly higher on both than on the Basic scale, and there was little difference between the LE and LE-AV teachers.

The Pilot teachers showed a unique pattern, being significantly higher on Individualized than on both Language Experience and Basic, but not significantly higher on Language Experience than on Basic.

Thus the S-D Teacher Inventory confirms the presence of significantly differentiated patterns of teaching in the Replication 2 teaching methods.

Teacher Attitude Toward CRAFT Method Scale

The Rating Scale of Teacher's Attitude towards CRAFT Method was devised during 1966-67 to get at the teachers' degree of satisfaction with their assigned teaching method, willingness to use it again, to recommend it to other teachers, etc. A copy may be found in the Appendix. It was filled out by all Replication 2 teachers near the end of the year.

On a scale from zero to 50, all means for methods fell between 37.6 and 46.0, a fairly narrow range indicating generally high satisfaction (Table 8.36). The Pilot and BR means were the two highest, and significantly higher than LE-AV which was lowest. All other differences between methods were non-significant. Since LE-AV was lowest both in teacher satisfaction and in pupil achievement, it is not surprising to find a low but significant correlation between this scale and adjusted achievement scores (Table 8.33).

Daily Logs

The Daily Log variables are numbered 44 to 60 in Table 8.33. Although Reading Time had significant $\underline{r}$'s with outcome measures in CRAFT 1, there are no significant $\underline{r}$'s for Reading Time, Supportive Time, or Total Time in Replication 2. None of the six categories of Reading Activities had any significant $\underline{r}$'s.

Among the Supportive Activities, the only categories with significant $\underline{r}$'s were Social Studies and Science categories, which were used only by the SC teachers. Social Studies had significant $\underline{r}$'s of .43 with Reading adjusted by pretests and .50 with Reading adjusted by posttests. Science had significant $\underline{r}$'s of .48 with Reading adjusted by pretests, .40 with Word Discrimination adjusted by posttests, and .55 with Reading adjusted by posttests. Evidently the use of substantial time on Social Studies and Science by teachers in the SC Approach was associated with performance above expectancy in reading comprehension.

In CRAFT 1 and 2, in which the number of teachers per method varied from nine to 12, $\underline{r}$'s were computed by method as well as for the total group of teachers, and some significant findings emerged. It may be that the lack of significant $\underline{r}$'s in Replication 2 is due to the cancelling effects of putting together the Log results of teachers in the five methods. However, the small number of teachers in each method (four to six) in Replication 2 made it impractical to do r's for method.

The mean times for the 20 Log variables are shown in Table 8.37 and 8.38. It is clear that the SC teachers spent more than half of their time on Reading Activities, less than half on Supportive Activities, and much less than the requested 30 minutes per day on Social Studies and Science. The LE teachers spent more than half of their time on Supportive activities and less than half on Reading Activities. LE teachers spent much less time on AV Activities and AV with Discussion than the LE-AV teachers. The Pilot teachers had high means in both Phonics and Individualized Reading.

Thus the Logs again show that each teaching method had distinctive features. The general lack of significant correlations with outcomes should not be taken as contradicting the CRAFT 2 results, which showed some interesting relationships when r's were computed separately by method.

CHAPTER IX

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

In Chapter I a number of specific objectives were listed. In Chapters V through VIII the data bearing on these objectives have been presented in detail, year by year. With such an abundance of trees, it is hard to see the forest. In the discussion below, an effort is made to bring together and consider the total evidence related to each of the major objectives, integrating the results of the five years of data collection rather than treating each year as a discrete unit.

1. Achievement of the Total Experimental Population

One of the objectives was to find out how the total CRAFT population would achieve in reading and related language arts under the experimental conditions. So far as possible, conditions other than method of teaching and pertinent materials were kept representative for the schools in which the project operated. Class size was kept at the average size for the grade. Pupils were initially selected at random from the entering first graders. Teachers participated on a voluntary basis. They were assumed to be representative of the teachers in their schools, since they ranged widely in age, experience, education, and rated competence.

At the beginning of first grade the pupils, who were Negro children attending schools located in ghetto neighborhoods of New York City, scored well below the national norms on readiness tests. The Replication group too, although they scored slightly higher in readiness, were still well below the norm.

On the Stanford Achievement Primary I, Form X, given as posttests in both CRAFT 1 and Replication 1, the mean grade score for all methods combined was approximately 1.5 which, although below the norm of 1.8, was considered satisfactory for this population.

On tests given near the end of second grade (Metropolitan Achievement Tests, Primary II) the mean grade equivalent for the total population in CRAFT 2 was 2.3 in Reading and Spelling and 2.4 in Word Knowledge and Word Discrimination. In Replication 2, the mean grade equivalents were 2.6 in Reading and Word Discrimination and 2.5 in Word Knowledge and Spelling. The Replication teachers achieved higher class means the second time than they had with the first group of pupils.

The Replication 2 results demonstrate that with experienced teachers whose motivation was heightened by experimental conditions that included in-service training and supervision, disadvantaged second graders performed very close to the norm in reading.

Third grade results (CRAFT 3) have been obtained for the children in the original study. The results show mean grade equivalents of 3.4 in Reading, and 3.3 in Word Knowledge, in April. The growth in reading during the third year was .9 years in Reading and .8 years in Word Knowledge. After three years of instruction, the third grade experimental children were, then, three to four months below the norm.

How the Replication children will do in third grade can only be discovered if a follow-up study of them is made. The Replication 2 results warrant the hope that Replication 3 results will surpass those of CRAFT 3.

2. Comparison of CRAFT with Non-CRAFT Children

Two comparisons have been made which indicate how the CRAFT children compared in achievement with those who entered the experimental classes late, and with those who left them early.

In CRAFT 2 the late entrants were found to have lower achievement results than CRAFT children, but only in the PV Method were these differences found to be statistically significant. Those who left the project during the first grade also achieved lower results than the CRAFT pupils.

A rough comparison is possible between the third-grade results in the CRAFT schools in 1963 (the year before the beginning of CRAFT) and the CRAFT third graders. Third grade school medians for 1963 were listed in the CRAFT 1 report (Harris & Serwer, 1966 a, p.13). Although most of the CRAFT analysis has utilized means, school medians were computed for the third grade CRAFT children in order to make comparisons with past achievement results.

The median of school median grade equivalents in Word Knowledge was 2.8 in 1963 and 3.1 in 1967. The corresponding medians in Reading were 2.95 in 1963 and 3.4 in 1967. In Word Knowledge the range of school medians was 2.5 to 3.5 in 1963, while in 1967 the range was 3.0 to 3.6. The range in Reading was 2.6 to 3.4 in 1963 and 3.2 to 3.9 in 1967.* Thus there seems to have been a substantial general improvement, which is most marked in the schools with lowest initial achievement.

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*This comparison became available after the typing of Chapter VI had been completed.

3. Comparison of Approaches and Methods

The main comparison in CRAFT was between the Skills-Centered Approach and the Language-Experience Approach. On first and second grade posttests the SC means were slightly higher than those for the LE Approach in Reading and Spelling in terms of both raw and adjusted scores. This was true in CRAFT 2 and was found again in Replication 2. In Replication 2, SC means were higher than LE Approach means and when converted into grade equivalents showed differences of three months in Reading, four months in Word Discrimination, and two months in Spelling.

However, the differences in outcomes among the classes within each approach were far greater than the differences between the means for the two approaches. Numerous analyses of variance have been carried out, and consistently the difference between approaches failed to meet the test for statistical significance.

It should be noted here that all analyses of variance were carried out using the class mean as the statistical unit. Where the individual child was used as the unit and simple t-tests were employed -- a far less rigorous approach -- some of the differences appeared significant. The staff of this project believes that the more conservative practice of using analysis of variance based on class units is the preferred procedure.

The third grade Metropolitan city-wide test given in April, 1967, provided the final criteria scores for the three-year CRAFT Continuation Study. The means for the LE Approach were for the first time higher than the SC means, both on unadjusted and adjusted scores, but when tested by analysis of variance the difference consistently fell within the range of chance variability.

To summarize, the SC Approach had a small and non-significant lead over the LE Approach during the first two grades in both the Continuation Study and the Replication Study. In the Continuation third-grade follow-up the LE gains were larger than the SC gains, and for the three-year period the LE Approach ended with a slight and non-significant advantage. Essentially all methods ended even.

The accelerated gain for LE during the third grade, in which most of the children were taught by variations of the BR Method, leads to interesting speculations. Three alternative hypotheses have some plausibility: (1) It is possible that the reading vocabulary used in the third grade reading materials filled in gaps in the reading vocabulary of LE children, so that their reading vocabularies coincided more closely with the vocabulary sampled in standardized tests. (2) It is possible that the emphasis placed on oral language and enriched experience in the first two grades contributed to the third grade LE gains. (3) It is possible that systematic skills reviews in third grade may have filled gaps in the phonic and structural analysis skills of the LE children and thus have allowed their general reading competence to grow.

Regretfully the CRAFT data do not provide evidence on the basis of which a choice can be made among these alternatives. Staff opinion favors the conclusion that all three factors were involved to some extent.

BR vs. PV. There is currently a great interest in the respective values of beginning teaching methods which stress the word recognition or decoding aspects of reading, as compared to approaches which stress meaning. According to the reports from the Coordinating Center (Bond & Dykstra, 1966; Dykstra, 1967), in representative, middle-class populations a variety of methods which stress decoding in early reading instruction obtained better results than those obtained with conventional basal readers. The same conclusion is reached in a current book (Chall, 1967).

A brief summary of the five years of CRAFT results is as follows: whether combined with basal readers or with a language-experience method, intensive phonics has failed to show a decisive advantage in reading, or even an advantage that is statistically significant.

In the original first-grade CRAFT study most of the differences between BR and PV were too small to be significant; the two significant differences (in Paragraph Meaning and in S-D Pupil Inventory) favored BR. In CRAFT 2 there were some differences favoring PV, mainly in tests of word recognition, but none of the differences was significant. On the third-grade follow-up the two SC methods were again very similar in their results. In Replication 1 and 2 the two methods ended the second grade with identical adjusted grade equivalent means of 2.7 on MAT Reading, equal to the norm. On other subtests, and particularly on the oral reading and word recognition tests given to the subsample, PV was ahead but not by a statistically significant margin. CRAFT results do not show superiority for a strong emphasis on decoding with disadvantaged children. CRAFT results are similar to those of the second Nashville study (Dunn et. al., 1967), in which control classes using basal readers did as well as those using i/t/a or Words in Color, both of which stressed sound-symbol associations.

Pilot. The Pilot Method represented an effort to test the combination of PV phonics with language experience and audio-visual methodology. At first glance the results for the Pilot Method looked very good. A careful analysis disclosed that the Pilot teachers in both first and second grade had done as well or better with their original methods (PV or LE-AV) as they did with the Pilot Method on most measures.

The pretest scores provide a plausible explanation for the lack of significant advantage for the PV or Pilot methods. On the Murphy-Durrell Phonemes Test, a readiness subtest measuring auditory perception for sounds within words, the CRAFT population had done very poorly, with a mean falling within the bottom one per cent of the normative group (Harris & Serwer, 1966a, p. 59). This finding confirms several research studies which have reported poor auditory perception among Negro children. The CRAFT children as a group had shown a marked lack of readiness for learning by a method that relies heavily on ability to perceive and discriminate sounds. In contrast, their highest readiness score had been on Murphy-Durrell Learning Rate, a test of readiness to learn by a look-and-say procedure. Since the children taught by procedures stressing sound-symbol associations did as well as those taught in other ways, it is evident that this disparity in initial readiness was overcome during the course of instruction.

The Basal Reader Method. In planning the CRAFT research design three major precautions were taken to ensure that the BR Method would constitute an experimental method rather than be a control method in the usual way. The first was to treat it on a par with the other methods in workshop sessions, class visits by project staff, etc. This procedure should have diminished if not eliminated differences in the Hawthorne Effect. The second was to insure that the BR teachers received complete basal materials, including teacher's manuals, workbooks, and word and phrase cards. The third was to emphasize repeatedly the importance of covering all activities recommended in the manual including the phonic and structural analysis activities. These three precautions would, it was hoped, allow a fair comparison of the BR Method with the other methods.

The results show that under these conditions the BR Method can produce results that are not significantly different from those obtained in other CRAFT methods. Of particular interest is the similarity of BR results and PV results.

LE vs. LE-AV. For the original CRAFT 1 results the LE-AV classes with full-session schedules had done equally as well as the SC methods and better than the LE Method. During the year in which both CRAFT 2 and Replication 1 were conducted, there were prolonged interruptions of AV consultant service and two replacements, so that the LE-AV Method did not really have a fair tryout. During CRAFT 3 and Replication 2 the disappointing results of the previous year probably served as a continuing handicap.

The CRAFT results for LE-AV are probably not representative of the best that can be done with such a method for disadvantaged children. However, they do provide evidence that this method requires a high level of teacher training and support, as well as expensive materials and supplies, if it is to be effective. CRAFT results failed to provide justification for the expenditures indicated.

Achievement Patterns. In Replication 2 the mean grade score of 3.2 on Gilmore Accuracy indicates above average ability in the mechanics of oral reading.

Comprehension requires more than word identification skills; it involves familiarity with language patterns, an adequate vocabulary, and a background of relevant information and concepts. The deficit in knowledge of word meanings which was conspicuous in the results of the first-grade pretests remained a handicap through the third grade, and probably reflects a limitation based on sociocultural background which is unlikely to be overcome by any particular method of teaching beginning reading. Both Word Knowledge and Paragraph Comprehension results lagged behind decoding or word recognition skills to the end of the third grade of CRAFT. In view of what is known about the cultural and educational disadvantages characteristic of children like those in the CRAFT study, it seems entirely reasonable and natural that they should have found it easier to learn word recognition and reproduction skills than to develop silent reading comprehension.

Subsample Results

In each year of the project a subsample of four children per class was selected from the CRAFT pupils and was tested with the Gilmore Oral Reading Test and the Gates and Fry word lists, the former based on frequency of occurrence, the latter on phonetic regularity. The subsamples were reasonably representative.

One major finding has been that consistently the children in all methods equalled or exceeded the norms in Gilmore Accuracy and Gates, the two scores for which grade equivalents were available.

In general the SC Approach has had a very slight advantage in Gilmore Accuracy and the PV and Pilot methods have done well on the word lists; Pilot did especially well on both Gates and Fry. The analysis of variance, however, failed to disclose significant differences attributable to method or approach. Although some of these differences looked significant when *t*-tests were based on individual pupil scores, the more rigorous analysis based on class means did not substantiate this.

Results for the Writing Sample have been somewhat inconsistent from year to year, with the BR Method doing well in both CRAFT 2 and Replication 2, but most of the differences failed to show significant differences in the analysis of variance.

The Importance of Differences Among Teachers

While there were distinctive differences among the CRAFT methods, there were also many similarities. For example, while phonics was taught earlier and more intensively in PV and Pilot Methods, all of the other methods devoted 10 to 15 minutes per day to phonics instruction. While experience stories were used as the main beginning reading materials in the LE Approach, they were also used at times as supplementary materials in Social Studies and Science by the teachers in the SC Approach. Individualized reading became the major reading activity in the second-grade LE classes, but some independent reading took place in SC classes also. Audio-visual procedures were stressed and focused on the reading process in the LE-AV and Pilot Methods, but incidental use of audio-visual activities occurred in all classes. Thus differences among CRAFT Methods were mainly in emphasis and proportion rather than of the all-or-none variety.

That there were genuine differences among the CRAFT methods has been validated with evidence from the Logs, from OScAR R, from the S-D Teacher Inventory, and from consultant visits. Since differences in outcomes were generally lacking in significance, the conclusion is inevitable that so long as no major reading objective is totally neglected, wide differences in time, sequence, etc. can produce quite similar achievement outcomes. Teacher effectiveness in planning learning activities, in recognizing individual and group needs, in fitting the difficulty of material to the reading skills of the children, in maintaining motivation, and in providing appropriate individual learning activities, may be the main determiners of pupil learning. CRAFT results support the conclusion that the teacher is far more important than the method.

4. Achievement of Special Groups

In addition to comparison by approach and method, comparisons were made between children who had or had not attended kindergarten; between boys and girls; and between early readers and the total population.

Kindergarten vs. Non-Kindergarten

On readiness measures at the beginning of CRAFT 1, kindergarten children had slight but non-significant advantages on three subtests, and significant advantages on tests of visual-motor ability, auditory discrimination and learning rate. There were small differences of about one month favoring the kindergarteners on first, second, and third-grade continuation posttests. These differences were larger for LE children than for SC children. In third grade, boys did equally well with or without kindergarten; in PV the boys without kindergarten had the advantage. Among girls the kindergarteners had an advantage. However, in the Replication study the kindergarten advantage was larger, with SC kindergarten children approximately at the norm and four months ahead of the SC non-kindergarten children on the Replication 2 posttests. While the LE Approach showed more benefit from kindergarten in the original study, the SC Approach indicated more advantage in the Replication Study. Reasons for this reversal are not known.

Boys vs. Girls

In contrast to many previous reports of girls surpassing boys in readiness for reading, the CRAFT boys did almost as well as the girls on reading readiness tests. At the end of the first grade the girls had a slight but non-significant lead. The differences increased during the second year and were still larger at the end of the third grade.

Where exceptions existed favoring boys over girls they did not follow a particular pattern, nor were they significant. For example in CRAFT 2 and Replication 2 boys in the LE-AV classes outscored girls on selected subtests of the MAT, and in the CRAFT 3 analysis did slightly better than girls on the Word Knowledge and Reading in the BR classes. In the other two methods, PV and LE, the boys were consistently lower achievers than girls.

The fact that sex differences varied according to teaching method reinforces the evidence of the readiness tests to the effect that the CRAFT boys and girls began the first grade about equally ready to read. They do not negate the possible influence of factors such as peer group attitudes, which may affect the achievement of boys adversely as they get older, or of differential treatment by teachers.

Early Readers

The group in the original CRAFT study who were identified at the beginning of first grade as early readers showed readiness well above that of the total population; had a substantial advantage in reading skills on first grade posttests; and continued to increase their lead through the second and third grades. Near the end of third grade their mean score was well above the grade norm.

At the end of first and second grades the means for the SC and LE Approaches were nearly identical, but on the April third-grade tests those in LE had made a greater gain than those in SC. Since these relatively few children were scattered through many different classes, it seems unlikely that a particular teaching method in third grade produced the third-grade difference.

It seems more likely that the nature of the training in first and second grades developed habits and attitudes that were somewhat different in the two approaches and led to differing rates of reading growth in third grade. It seems reasonable to speculate that the emphasis given in the second grade to individualized reading in the LE Approach may have been a major factor in this difference.

Does the superior progress of the early readers lead to the conclusion that all disadvantaged children should begin reading instruction earlier than the first grade? Such a conclusion would not be warranted from the present evidence. Whether children similar to the early readers would or would not become superior readers by third grade if they did not begin to read before first grade cannot be answered by CRAFT results, but will require further research. Also, if it should be found that children with high readiness benefit from reading instruction before the age of six, this would not necessarily apply to the bulk of the disadvantaged population with low readiness. Further research on the value of earlier systematic reading instruction for disadvantaged children is clearly desirable.

5. Instructional Time

One of the major findings of the CRAFT Project is that variation in the amounts of instructional time spent on various aspects of reading and language arts instruction sometimes have significant correlations with pupil achievement. This confounds the relationships between teaching methods and results, and makes it difficult to determine whether teaching method, or instructional time, is more important in the results. Thus, the project has pointed out a major source of error which has not been controlled in many other comparative investigations of reading methodology and therefore obscures the interpretation of the results of those studies.

Although efforts were made repeatedly by the research staff and consultants to get the teachers to adhere to the recommended time allotments, these efforts were only partially successful. Time actually spent, as determined from Daily Logs, showed substantial variations within each method. In CRAFT 1 and 2, it was possible to correlate time variables with adjusted reading achievement within each method. In Replication 1 and 2 there were not enough classes in each method to warrant such an analysis.

Through the four years, teachers in the SC Approach slightly exceeded the requested 90 minutes per day for Reading and used substantially less than the requested 90 minutes per day for Supportive Activities; most of the latter deficit was due to the small amount of time spent on Social Studies and Science. In the LE Approach the general tendency was for teachers to exceed the total of 180 minutes per day, but to devote more than half to Supportive Activities; thus the LE teachers tended in general to spend about ten minutes less per day on Reading than the SC teachers did. The consistency of this difference suggests that it is inherent in the nature of the two approaches. However, careful study of the particular categories that had significant positive or negative relations with outcomes may point out specific ways in which the efficiency of each instructional method can be improved.

In CRAFT 1 there was a significant positive correlation between total Reading time and outcomes for the BR, PV, and LE-AV Methods, but not for the LE Method. Supportive time had a significant relationship with results only in LE-AV. For the BR teachers, time spent on Basal Reader and Sight Word Teaching was positively related to results. In PV the amount of time spent on Phonics was not significantly related to outcomes.

In CRAFT 2 the SC teachers spent 17 minutes per day less than the 180 minutes requested, but the deficit was mainly in Social Studies and Science. Two-thirds of the SC time (105 minutes per day) was spent on Reading and only one-third (57 minutes) on Supportive Activities. The LE teachers averaged 10 minutes less per day on Reading and 42 minutes per day more for Supportive.

For the BR teachers in CRAFT 2 there was a significant positive $\underline{r}$ for Listening to Poetry, and almost significant $\underline{r}$'s for Sight Words and for Other Reading.

For the PV teachers in CRAFT 2 there was a high negative relationship between Phonics time and results. Those PV teachers who spent the least time on Phonics tended to achieve the best results, suggesting that there is a saturation point for phonic practice, beyond which it is not desirable to go.

For LE teachers there was a negative correlation for Listening to Stories, suggesting the desirability of more reading by the children and less reading to the children. Art Work with Reading had negative $\underline{r}$'s in both CRAFT 1 and CRAFT 2 for LE teachers, indicating a tendency for excessive and non-productive time to be spent in this way.

For LE-AV teachers in CRAFT 1 there was a positive relationship between AV time and results, which did not reappear in CRAFT 2. For the other three methods AV time tended to be negatively related to results, reinforcing the conclusion that if AV procedures are to be beneficial to reading instruction, teachers must be well trained and guided in their use.

In Replication 1 the teachers were informed at the start of the year concerning the results of the Log analysis in CRAFT 1, and this deliberately planned feedback may be the major reason why none of the Log variables correlated significantly with outcomes. It seems reasonable that teachers became aware of overemphases and underemphases and made corrections accordingly.

Similar feedback information was given to the Replication 2 teachers, and for them, also, most of the r's with outcomes are not significant. One trend emerged: in the BR and PV Methods time spent in Social Studies and Science was positively related to outcomes. Since the general tendency was for SC teachers to spend less than the requested time in those two curricular areas, the results imply the desirability of utilizing content from these areas more fully in second-grade reading, particularly in supplementation to the use of basal readers.

The fact that there were not enough Replication classes to warrant a separate correlational analysis for each method probably prevented additional meaningful relationships from being discovered. Thus, the analyses by method in CRAFT 1 and 2 could neither be confirmed nor denied in the Replication analyses.

The accuracy with which the CRAFT teachers recorded their use of time on the Daily Logs cannot be exactly determined; a validity check would have required prolonged classroom observations far beyond the research staff's capability. There has been, however, no evidence from workshop discussions, classroom visits by the consultants, or the OScAR R observations to suggest any intentional inaccuracies.

The use of some form of teachers'report on use of time is strongly recommended by the CRAFT staff for use in future research on classroom methodology. The 1230 Daily Log form used in CRAFT showed that it is possible to compile and analyze such data with automatic equipment, making such research practicable.

6. Other Teacher Variables

A number of teacher variables, such as age, amount of education, total years of experience, years of experience in the grade, whether married or not, and ethnic similarity between teachers and pupils, showed generally low and non-significant relationships with learning outcomes. This conclusion is based primarily on the results of the Replication Study in which the teachers had all been in CRAFT during the preceding year. Teacher absence had generally negative r's with outcomes, but only in CRAFT 2 were these significant. Ratings of teacher effectiveness based on classroom visitation had positive relations to outcomes but most of them were close to zero. In general it seems safe to conclude that these characteristics, which were well equated among the methods, did not materially affect the comparisons of methods and approaches.

OScAR R

The OScAR R was a special observational procedure developed specifically for use in CRAFT, and was used in CRAFT 1 and 2. Part of it provided scales designed to check whether the teaching methods were genuinely different, and these validated the presence of a significantly different pattern for each method. On the whole, those second-grade SC teachers who used a good deal of enrichment activities of a language-experience type tended to get better results in reading than those who confined themselves rather narrowly to skills development.

Motivational practices were also significantly related to reading achievement. Teachers who made a large number of disciplinary statements tended to get poor results. High scores in "Negative Motivation" were significantly associated with poor results in the BR, PV, and LE Methods. "Positive Motivation" had negative correlations in the SC methods and positive correlations in the LE methods. This interesting finding suggests that different styles are effective in different teaching methods.

It would be a mistake to assume a direct causal relationship between motivational style and results. The number of times a teacher interrupts with a disciplinary comment may be a by-product of effective or poor lesson planning and presentation. Uninterested, bored, or frustrated children may create disturbances which the teacher then has to stop. On the other hand, liberal use of praise seems to have worked well in LE methods.

The analysis of OScAR R results thus far has only scratched the surface, but has uncovered enough to encourage further research in which intensive, prolonged classroom observations would attempt to discover why the supposedly same teaching method produces outstanding results for one teacher and inferior results for another. Since differences among teachers in the same method were far greater than differences between methods, a determined effort to find out what produces these within-method differences is strongly recommended.

Teacher Attitudes. The San Diego Teacher Inventory of Approaches to the Teaching of Reading provided evidence concerning shifts in the attitudes of teachers toward basic, individualized, and language-experience methodology. At the beginning of CRAFT 1 all groups of teachers showed a slight preference for basic methodology. By the end of the year each group shifted in a direction favorable to the method they had used. Similar trends were found for the second-grade teachers. During the Replication Study these trends crystallized still more.

Most of the correlations between San Diego scale scores and pupil achievement were not significant. However, in second grade there was a strongly negative relationship between PV teachers' scores on the Basic scale and outcomes. This reinforces the findings from Logs and OScAR R to the effect that second-grade teachers who concentrated narrowly on skills did not get as good results as those who employed a substantial amount and variety of enrichment.

At the end of Replication 2, the teachers were asked their opinions of the method they had used. Since the reliability and validity of the scale were not established, the results can only be suggestive. The scale tended to have positive correlations with results. In other words, those who liked their method got good results, or those who got good results liked their method. The correlation does not indicate the direction of causation. It does indicate that satisfaction with a teaching method and effectiveness in using it are positively associated.

7. Other Variables

A few additional variables were included in the research design and deserve some brief comment.

Pupil Variables

Reading readiness variables consistently had meaningful correlations with outcome measures, but since they were partialled out, they did not affect the adjusted scores. An experimental visual-motor test which was given to only a sampling of the children had *r*'s with both first and second grade outcomes that look promising.

Pupil absence was generally low throughout the project and may be disregarded as an interfering variable since it was evenly balanced among the methods.

Regulations of the New York City Board of Education prohibited the use of a group mental ability test such as the Pintner-Cunningham which was part of the cooperative first grade test battery. Thus the CRAFT population cannot be compared with other populations on a very important variable; a probably important covariate could not be used; and the usual basis for studying the relation between ability levels and teaching method was not available.

The CRAFT research staff wishes to go on record as recommending that the prohibition against using group mental ability tests for research purposes hampers the conduct of research, prevents the collection and analysis of necessary information, and should be rescinded.

Chronological age has shown such negligible correlations with reading in many other studies that it was not considered to be a likely covariate in CRAFT. Age was recorded but was ignored up to the final 60 x 60 intercorrelation matrix in Replication 2. There it showed significant r's with adjusted second grade results, much to the surprise of the research staff. Means for CA were practically identical for all methods, so this finding has no bearing on the comparison of methods. It suggests, however, that age should not be ignored as a significant factor in the school readiness of disadvantaged children.

Community Variables

Two measures of the status of the neighborhood in which each CRAFT school was located were obtained from census tract records: median income and median education of adults. The schools all had disadvantaged populations, but neighborhood data indicated that there were differences among schools in degree of disadvantage. This is not surprising considering the range in school median reading grades.

It had been assumed that any community effects on the CRAFT children would show up in their readiness scores and would be canceled by the adjusting procedure. After this report was nearly completed it was noticed that in the 60 x 60 matrix in Replication 2, there were significant r's between Median Education and adjusted posttests. A quick inspection showed that the four original CRAFT methods had between eight and nine years of median education, while the Pilot Method had a median of ten years. This added a little postscript to the conclusion previously reached, to the effect that the comparatively good results of the Pilot classes were due to factors other than teaching method.

8. Some Limitations

There are strong temptations, on completing a long and large-scale research project, to generalize broadly on the basis of the results. In the case of CRAFT a number of restrictions on the degree to which the results may legitimately be generalized need to be mentioned.

1. The child population is probably representative of disadvantaged young Negro children growing up in segregated neighborhoods in large Northern cities. They are not necessarily representative of Negro children in smaller communities or in the South. Their results are not necessarily like those that might be obtained with other groups of disadvantaged children such as Spanish-speaking children

or white children in Appalachia, or of middle-class Negro children.

2. The teachers in the project were reasonably representative of the staffs of the schools in which they worked--large urban schools with many classes on each grade.

3. The random assignment of pupils to classes was not characteristic of pupil classification practices in New York City schools. The degree to which the results might have been different if the more typical grouping practices had been followed is not known.

4. The CRAFT classes were of normal size for the school and the teachers were not allowed to have help from student teachers or aids. How a lower class size or extra personnel would influence effectiveness of the methods studied is not known.

5. At the beginning of the first grade the CRAFT classes had a uniform readiness program lasting one month in CRAFT 1, and a week less in Replication 1. It is not known what the effects of a longer or different kind of readiness program might have been; or of varying the time for pre-reading training according to the tested abilities of the children.

6. The basal readers used were those available in the schools in 1964. Conclusions based on their use do not necessarily apply to newer series which have since been published.

7. While language-experience approaches have common features, each has distinctive characteristics. Conclusions about the language-experience results in CRAFT apply to the kind of LE program described in Chapter IV.

8. The CRAFT populations did not include enough children who had pre-kindergarten or pre-first grade schooling of the Head Start variety to warrant the drawing of any conclusions concerning the effectiveness of such programs.

9. The CRAFT results do not provide information about the progress of the children beyond the third grade in the original study, or beyond the second grade in the Replication study.

10. CRAFT teachers were instructed to spend three hours a day in the teaching of reading and supportive activities--far more than was recommended in official syllabi when the project started. It is doubtful that similar results can be obtained with time allotments that are considerably smaller.

9. Recommendations

1. The results strongly support the desirability of providing in-service workshops and expert consultative help for teachers, and especially for inexperienced teachers.

   The major conclusion to be drawn from the five years of results is that the teacher is far more important than the method. Assistance provided by consultants who were perceived as helpers rather than as supervisors was probably the main reason for the favorable results obtained in all of the methods. For consultation to be effective, the number of teachers assigned to a consultant must be far smaller than it has been in New York City schools. Costly procedures such as smaller classes and provision of auxiliary personnel may continue to give disappointing results if teaching skills are not improved.

2. The results suggest the desirability of modifying the kindergarten programs for disadvantaged children in the direction of including sequentially planned activities for the development of specific aspects of reading readiness. They suggest that children who show accelerated readiness may benefit from an earlier start in reading.

3. The results have not shown a decisive advantage for any of the methods used in the study. Evidence has been found that the amount of time devoted to specific phases of each method is significant, and that the effectiveness of motivational patterns differs from one method to another.

4. It is recommended that efforts be made to analyze each teaching method in much finer detail and to study the effects of planned variations in teaching style as well as in skills and content.

5. In a city with a mobile disadvantaged population the impact of moving on pupil achievement is important. Children moving into CRAFT classes were found to be significantly handicapped in only one of the methods studied (PV). If such a method is utilized, it should either be employed on a community-wide basis, or steps need to be taken to insure that special help is given to new entrants.

6. The excitement and motivation of being in an experimental study seems to have been in part responsible for the favorable results of the CRAFT research. It is possible that the continuing involvement of teachers in a program of studying and testing new methods and materials would be productive

of improved results, regardless of the merits of the specific factors being studied.

7. CRAFT results have shown a significant relationship between teacher satisfaction with a method and her results with it, but do not provide a causal explanation. Further study is needed to clarify this important question. One possibility is that when teachers find that a method works they learn to like it, even if originally opposed to it. The alternative is that some teachers can do better with one kind of method and other teachers with a different method, so that method should be fitted to the teacher's characteristics. A research attack on this problem seems desirable.

8. By the time the CRAFT Project was in its first year, a number of innovative ways of teaching beginning reading were clamoring for attention. Considering the cost of reading instruction and its central importance in the lives and careers of children, every innovation should be subjected to careful research. At present a set of new reading materials begins to compete for sales several years before impartial research data about it begins to appear.

A continuing program of objective research and evaluation on new reading materials and methods, conducted on a large enough scale, with sophisticated research techniques, and for long enough periods of time, is urgently needed. The cost of such a program is probably well beyond the resources of any one school system or professional group.

CHAPTER X

SUMMARY

The CRAFT Project investigated the progress in reading of disadvantaged urban Negro children from the beginning of the first grade through the third grade using two basic teaching approaches. The present report covers the continuation of the original study through second and third grades, and a replication study in first and second grades. The Skills-Centered Approach included two methods, a Basal Reader (BR) Method, using conventional basal readers, and a combination of basal readers with the Phonovisual system of teaching and identificational skills, the combination being called the Phonovisual (PV) Method. The Language-Experience Approach developed reading materials from the experiences and verbalizations of the children and gradually moved into individualized reading. It had two variants, a regular Language Experience (LE) Method, and a Language Experience, Audio-Visual (LE-AV) Method, in which several kinds of audio-visual supplementation were provided.

1. Procedures

In the main CRAFT Project, which received support from the U.S. Office of Education for three and a half years, teaching methods were controlled in first and second grade and a follow-up was conducted in third grade. In the Replication study the four original methods were repeated in first and second grade and a fifth method called Pilot, which combined features of the PV and LE-AV Methods, was added.

The main CRAFT study began with 1,378 children who took first grade pretests in October, 1964. Of these, 1,141 remained through the first grade posttests, 656 remained in experimental classes through the second grade posttests, and 1,128 were located in the third grade follow-up, 489 of whom had participated throughout the two years of controlled methodology and took the city-wide third grade reading tests in April, 1967. The Replication Study began with 799 children who took the first grade pretests; 680 of them remained through the first grade posttests and 402 remained through the second grade posttests.

The project operated in twelve New York City public elementary schools, located in disadvantaged neighborhoods, having almost exclusively Negro pupils, and having third-grade medians in reading at least a half year below the city norms prior to the study. Eleven of the schools remained in the project for two years and ten schools completed the three-year program.

In the first year there were 48 classes, 24 in each of the two approaches and 12 in each method. A balanced design placed two SC classes and two LE classes in each school, with each SC Method paired with the LE Method in three schools and with the LE-AV Method in three schools. Method combinations were assigned to schools at random; teachers in each school drew lots for one of the two methods; pupils were selected at random from the entering first graders in each school and assigned at random to the four experimental classes.

Teachers were volunteers but otherwise representative of the primary grade teachers in their schools. They varied greatly in age and teaching experience. They received honoraria for the considerable amount of extra time required by participation in the study. They were trained in the experimental methods by a combination of workshop sessions, duplicated instructions and suggestions, and class visits by the consultants. Their teaching was observed by the consultants, and by research assistants using an observational schedule called OScAR R. They recorded teaching time on Daily Log forms and periodically completed inventories of attitudes toward methods of teaching reading.

Parents were contacted at the beginning of the study and encouraged to believe that participation would be beneficial to their children. The parents were not involved in any way other than allowing their children to participate. There is no evidence of parental hostility to the program or of withdrawal of pupils because of parental dissatisfaction.

Since the CRAFT Project was one of the 27 cooperating projects which received support from U.S.O.E. in 1964-65, the testing program that year utilized the same pretests and first grade posttests as the other projects. In the second and third grade continuations, and in the Replication Study, the Metropolitan Achievement Tests were used instead of the Stanford. Subsample populations were given the Gilmore Oral Reading Test and the Gates and Fry word lists, as well as having their Writing Samples scored. Pupils also responded to a scale of interest in reading, had their independent reading recorded, and were rated for interest in reading and maturity of choices.

Statistical treatment was carried out using the class as unit when appropriate. Means and standard deviations were obtained for raw scores; for scores adjusted on the basis of first grade pretests; and for scores adjusted on the basis of the posttests for the preceding grade. Grade equivalents were also obtained. Significance of difference was tested by analysis of variance and, when appropriate, by t-tests. A large number of variables were correlated with adjusted outcome measures, and those with significant correlations were given further study. Special comparisons were made of children with and without kindergarten, of boys and girls, and of early readers.

Analyses were also made of the Daily Logs, the OScAR R scales, and the San Diego Teacher Inventory.

2. Results

1. The main finding, which held for all five years, was that differences in class means within each method were much larger than differences between the means for approaches and methods. When tested by analysis of variance, nearly all comparisons between approaches and between methods fell within the range of possible chance variations.

2. During the first and second grades in both the original and replication studies the SC Approach had slightly higher means than the LE Approach, with the differences not large enough to be significant. By the end of the third grade, the LE means were slightly higher than the SC means, again with margins not large enough to be significant. The LE children made slightly greater progress during the third grade, so that the two approaches had essentially equal results for the three-year period.

3. CRAFT school medians for the third grade substantially surpassed the third grade medians for the same schools in the period just prior to the CRAFT experiment, the difference amounting to 4.5 months in reading comprehension.

4. When the majority of the teachers taught again with the same methods in the Replication Study, the results at the end of grade two were somewhat better than those of the original CRAFT study. In Replication 2 the grade equivalent means for the SC Approach, adjusted for pretests, were at the norm in reading comprehension.

5. Differences between results of the BR and PV Methods were generally small and non-significant.

6. Differences between results of the LE and LE-AV Methods were in general not significant. The LE-AV results were impaired by interruption of audio-visual consultant services and therefore are not considered to show what the method can do under favorable conditions, but do not suggest that the additional expenditures required are warranted in terms of improved reading skill.

7. Although the Pilot Method produced good results in the Replication study, the teachers using it had done as well or better in reading and spelling in the original study,

using one of the original methods; thus Pilot results are attributed to teaching skill rather than to the particulars of the method.

8. CRAFT children as represented by the subsamples, tended to score higher (and above the norm) in accuracy of oral reading and in word identification than in reading vocabulary and comprehension. This held true in all methods and while the methods putting early stress on word identification skills (PV and Pilot) tended to have higher means on these tests, most of the differences were not significant.

9. At the start of the first grade, girls tended to have slightly higher means on some readiness tests and boys on others. Differences in favor of girls tended to increase during the second and third grades. The Replication pretests were about evenly balanced between the sexes and boys were slightly and non-significantly ahead in the LE-AV Method. The differences favoring girls were largest in the LE and PV Methods, small or non-existent in the BR and LE-AV Methods. This linking of differences in achievement with teaching methods strongly suggests that for this population the feminine advantage is environmentally rather than biologically produced.

10. Kindergarten children had consistently higher scores than non-kindergarten children on the first grade pretests and on all sets of posttests. Differences were quite small in first grade and tended to increase through the third grade. In the continuation study through third grade the advantage was greatest for LE kindergarten children, but in the replication study the kindergarten children in SC classes showed wider margins of advantage through second grade.

11. Children who were identified by their teachers as being early readers at the beginning of first grade surpassed the total groups on the pretests and on all sets of posttests. By the end of third grade these children were well above grade norms in reading but not in arithmetic. The good progress of this group suggests that an early start may be beneficial to disadvantaged children who are initially high in readiness.

12. SC teachers tended to spend more time on Reading and less time on Supportive activities than LE teachers in the first and second grades. In the original first grade study there was a significant positive correlation between Reading time and class achievement in reading. These results were reported to teachers and in subsequent years of the project this relationship was not found again. Differences in instructional time can be a major source of uncontrolled variance in research on classroom methodology.

13. In the first CRAFT year it was evident that three of the methods produced relatively good results when their distinctive features were given added time. This was not true of the PV Method, and in second grade the negative correlation between Phonics time and outcomes showed that a heavy concentration on phonic drill can go with poor results. The small number of teachers per method made it difficult to interpret the correlations between instructional time and outcomes, since the criteria for statistical significance were necessarily severe.

14. The OScAR R (Observational Schedule and Rating - Reading) produced some interesting results. High Control scores, indicating frequent efforts to maintain discipline, were associated with relatively poor achievement. There was a trend suggesting that emphasizing praise and avoiding scolding is associated with good results in the LE Approach, but not in the SC Approach. In second grade the SC teachers who enriched their programs with a considerable amount of language-experience activity (particularly with Social Studies and Science content) tended to get better results than the SC teachers who focused more narrowly on reading skills; this was particularly true in the PV Method.

15. On the San Diego Teacher Inventory of Approaches to the Teaching of Reading all groups began the first grade with a slight bias favoring basal methodology. At the end of first and second grades the SC teachers were significantly higher on the basic scale and lower on the individualized and language-experience scales, while the LE teachers became significantly lower on the basic scale and higher on the individualized and language-experience scales. Thus each group of teachers moved toward more complete acceptance of the methodology they had learned to use. However, most of the correlations between teachers' attitudes on the San Diego scales and pupil achievement were not significantly greater than zero.

16. Pupil attitude toward reading, as measured by the San Diego Pupil Inventory, was essentially similar in all methods after the first year. The method of instruction to which the children were exposed apparently did not differentially effect related components of pupil achievement such as eagerness to read, the maturity of the child's choice of reading material, or the number of books read.

17. A large number of variables was demonstrated not to have interfered with the comparison of approaches and methods, either by having non-significant correlations with reading results, or by being evenly balanced among the teaching

methods. This conclusion applies to the four original methods but not to the Pilot Method, which was found to have had the benefit of better than average teachers and better than average neighborhood income. The variables checked included pupil age, absence, and readiness scores; teacher age, marital status, education, years of experience in total and in the specific grade, rated competence, and ethnic similarity to or difference from the pupils; adult education and income in the neighborhood.

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APPENDIX A

Statistical Tables

Table 3.1

Assignment of Methods to CRAFT 2 Classes

Method	Schools											Total Classes
	A	B	C	D	E	G[a]	H	I	J	K	L	
BR	-	2	2	-	-	2	-	2	2	-	-	10
PV	2	-	-	2	1	-	1	-	-	2	2	10
LE	2	-	2	-	1	1	-	1	-	-	2	9
AV	-	2	-	2	-	-	1	-	2	2	-	9
Total Classes	4	4	4	4	2	3	2	3	4	4	4	38

[a] School F left the CRAFT Project in June 1965

Table 3.2

Pupil Loss by School and Borough from Beginning of CRAFT 1 through the End of CRAFT 2

School	Number of Children		
	Pretest Grade 1	Posttest Grade 2	Loss
A	122	80	42
B	110	59	51
C	110	65	45
D	101	64	37
E	99	32	67
G	102	44	58
H	115	35	80
I	137	53	84
J	114	75	39
K	119	81	38
L	123	68	55
Total	1,252[a]	656[b]	596

Per cent of Loss:		
	Queens	43.8%
	Brooklyn	54.5%
	Manhattan	40.1%
	Total	47.6%

---

[a] Total does not include school F which withdrew from the CRAFT Project in June, 1965.

[b] Number of children used for adjusting MAT scores.

Table 3.3

Pupil Loss by School and Borough from CRAFT 1 Posttests through CRAFT 2 Posttests

	Number of Children		
School	Posttests CRAFT 1	Posttests CRAFT 2	Loss
A	89	80	9
B	84	59	25
C	90	65	25
D	80	64	16
E	80	32	48
G	88	44	44
H	102	35	67
I	114	53	61
J	98	75	23
K	105	81	24
L	109	68	41
Total	1,039[a]	656[b]	383

Per cent of Loss:	Queens	35.0%
	Brooklyn	45.5%
	Manhattan	19.7%
	Total	36.9%

---

[a] Total does not include school F which withdrew from the CRAFT Project in June, 1965.

[b] Number of children used for adjusting MAT scores.

Table 3.4

Per Cent of CRAFT 1 Children in CRAFT 2 Classes by Method and Approach

Approach and Method	No. of Children in CRAFT 2 Classes	No. of CRAFT Children in CRAFT 2 Classes	Per Cent CRAFT Children in CRAFT 2 Classes
Skills-Centered			
BR	285	166	58.2%
PV	284	201	70.8
Total	569	367	64.5
Language-Experience			
LE	253	145	57.3
LE-AV	253	144	56.9
Total	506	289	57.1
Total	1,075	656[a]	61.0%

[a] Number of CRAFT 1 children in CRAFT 2 classes is the number per class used for adjusting pupil MAT scores.

Table 3.5

CRAFT 1 Pretests and Posttests for the Final Population in CRAFT 2 Compared with the Final Population of CRAFT 1

Test	Final Population Grade 2 Mean Score	Final Population Grade 1 Mean Score	Mean Diff.	t
Pretests				
Murphy-Durrell Learning Rate	7.63[a]	8.17[b]	-0.54	-3.31**
Thurstone Pattern Copying	2.76	2.69	0.07	0.45
Met. Word Meaning	5.28	5.25	0.03	0.34
Met. Listening	6.80	6.79	0.01	0.10
Posttests				
SAT Word Reading	13.64[c]	13.42[d]	0.22	0.88
SAT Paragraph Meaning	10.37	10.18	0.19	0.66
SAT Vocabulary	14.36	14.35	0.01	0.05
SAT Spelling	6.82	6.51	0.31	1.38
SAT Word Study Skills	26.93	25.98	0.95	2.65**

**$P < .01$

[a] N's vary between 656 and 611

[b] N's vary between 1,125 and 1,062

[c] N's vary between 646 and 632

[d] N's vary between 1,127 and 1,101

Table 3.6

CRAFT 2 Class Size as of May, 1966

Approach and Method	Total N Pupils	Total N Classes	Mean Size	Range
Skills-Centered				
BR	263	10	26.3	23-30
PV	275	10	27.5	20-35
Total	538	20	26.9	20-35
Language-Experience				
LE	212	9	23.6	8-27
LE-AV	230	9	25.6	14-34
Total	442	18	24.6	8-34
Total	980	38	25.7	8-35

Table 3.7

CRAFT and Non-CRAFT Children in the CRAFT 2 Classes
Who Took the Posttests

Approach and Method	CRAFT Children			Non-CRAFT Children		
	N	Mean N Per Class	Range	N	Mean N Per Class	Range
Skills-Centered Approach						
Basal Reader	166	15.9	15-27	104	10.4	6-16
Phonovisual	201	19.6	13-19	79	7.9	3-15
Total	367	17.8	13-27	183	9.2	3-16
Language-Experience Approach						
Language-Experience	145	15.1	4-22	76	8.4	4-14
L-E Audio-Visual	144	15.4	12-21	91	10.1	4-19
Total	289	15.3	4-22	167	9.3	4-19
All Classes Combined	656	16.8	4-27	350	9.2	3-19

Table 3.8

Number of Boys and Girls in CRAFT 2

Approach and Method	Boys	Girls	Total
SC Approach			
BR	81	85	166
PV	102	99	201
Total	183	184	367
LE Approach			
LE	74	71	145
LE-AV	74	70	144
Total	148	141	289
Total All Methods	331	325	656

Table 3.9

Age of Teachers in CRAFT 2

	Skills-Centered Approach			Language-Experience Approach		
	BR	PV	Total	LE	LE-AV	Total
N Teachers	10	10	20	9	9	18
Mean Age	41.70	34.20	37.95	42.56	31.56	37.06
Median Age	50.50	30.00	36.50	44.00	27.00	32.50
S. D.	15.54	10.48	13.77	10.25	11.25	12.09
Age Range	21-60	22-53	21-60	27-55	22-57	22-57

Table 3.10

Educational Level of the CRAFT 2 Teachers

	Skills-Centered Approach			Language-Experience Apprcach		
	BR	PV	Total	LE	LE-AV	Total
Less than B.A	0	0	0	0	0	0
B.A.	4	5	9	3	4	7
B.A. +	4	3	7	5	3	8
M.A.	2	0	2	1	1	2
M.A. +	0	2	2	0	1	1

Table 3.11

Total Years of Teaching Experience, CRAFT 2

	Skills-Centered Approach			Language-Experience Approach		
	BR	PV	Total	LE	LE-AV	Total
N	10	10	20	9	9	18
Mean	6.90	5.70	6.30	7.39	3.33	5.36
Median	3.00	5.00	3.00	8.00	2.00	5.75
S.D.	7.98	3.98	6.33	3.29	2.86	3.69
Range	0-22	1-11	0-22	3-14	0-7	0-14

Table 3.12

Second Grade Teaching Experience, CRAFT 2

	SC Approach			LE Approach		
	BR	PV	Total	LE	LE-AV	Total
N	10	10	20	9	9	18
Mean	2.50	2.60	2.55	3.33	1.33	2.33
Median	1.50	2.00	2.00	3.00	1.00	2.00
S.D.	2.80	2.33	2.58	2.11	1.56	2.11
Range	0-9	0-8	0-9	0-8	0-5	0-8

Table 5.1

Comparison of MAT Raw Scores for CRAFT and Non-CRAFT Children in the Same Classes, CRAFT 2 (Class as Unit)

Subtest	Method	Mean		t
		CRAFT	Non-CRAFT	
Word Knowledge	BR	19.71	15.63	1.45
	PV	18.66	12.89	3.45**
	LE	17.14	13.77	1.42
	LE-AV	17.44	16.08	0.90
Reading	BR	24.01	21.48	0.66
	PV	24.32	17.79	4.53**
	LE	23.36	19.84	1.26
	LE-AV	22.16	21.10	0.53
Word Discrimination	BR	22.93	19.24	1.70
	PV	23.32	16.69	3.63**
	LE	21.61	19.21	1.38
	LE-AV	20.70	19.07	1.07
Spelling	BR	15.63	12.11	1.41
	PV	15.76	8.99	3.69**
	LE	14.01	11.50	1.14
	LE-AV	14.58	11.82	1.92
Arithmetic[a]	BR	2.13	2.01	0.86
	PV	2.10	1.92	1.28
	LE	2.15	1.98	1.19
	LE-AV	2.04	1.97	0.52

[a] These are mean grade equivalents

**$p < .01$

Table 5.2

Comparison of Obtained MAT Mean Grade Equivalents for CRAFT and Non-CRAFT Children in Same Classes, CRAFT 2

Subtest	Method	Mean Grade Equivalent	
		CRAFT	Non-CRAFT
Word Knowledge	BR	2.6	2.3
	PV	2.5	2.1
	LE	2.4	2.2
	LE-AV	2.4	2.3
Reading	BR	2.3	2.2
	PV	2.3	2.0
	LE	2.3	2.1
	LE-AV	2.2	2.2
Word Discrimination	BR	2.5	2.1
	PV	2.5	2.0
	LE	2.4	2.1
	LE-AV	2.3	2.1
Spelling[a]	BR	2.4	2.1
	PV	2.4	2.0
	LE	2.3	2.1
	LE-AV	2.3	2.1

[a] National norms used; no New York City norms available

Table 5.3

Raw Score Results for MAT Posttests, CRAFT 2
(Class as Unit)

Method and Approach	N	Word Knowl.		Word Discrim.		Reading		Spelling		Arithmetic	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach											
BR	10	19.71	5.43	22.93	4.21	24.01	7.51	17.28	4.85	21.34	2.16
PV	10	18.66	3.94	23.32	2.81	24.32	3.73	15.76	3.60	21.06	2.85
Total	20	19.18	4.77	23.12	3.58	24.16	5.93	16.52	4.34	21.20	2.53
LE Approach											
LE	9	17.47	5.04	21.61	3.25	23.36	5.89	14.01	4.70	21.55	3.54
LE-AV	9	17.44	3.39	20.70	2.08	22.17	4.05	14.59	3.01	20.43	2.85
Total	18	17.46	4.30	21.16	2.77	22.76	5.09	14.30	3.96	20.99	3.26
All Methods	38	18.36	4.64	22.19	3.38	23.50	5.60	15.47	4.31	21.10	2.91

Table 5.4

Obtained Grade Equivalent Means for MAT Posttests, CRAFT 2 (Class as Unit)

Method and Approach	Word Knowledge	Word Discrimination	Reading	Spelling[a]	Arithmetic
Skills-Centered					
BR	2.6	2.5	2.3	2.5	2.4
PV	2.5	2.5	2.3	2.4	2.4
Total	2.5	2.5	2.3	2.4	2.4
Language-Experience					
LE	2.4	2.4	2.3	2.3	2.4
LE-AV	2.4	2.3	2.2	2.3	2.3
Total	2.4	2.3	2.3	2.3	2.4
All Methods	2.4	2.4	2.3	2.3	2.4

[a] National Norms

Table 5.5

Correlation Matrix of CRAFT 1 Pretests and Posttests and CRAFT 2 Posttests

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N	656	611	614	644	645	646	639	637	632	640	629	630	628	626	579
1 Pre Gr 1 School Experience	1.00	.12	.14	.09*	.19	.14	.13	.18	.13	.14	.11*	.10*	.13	.10*	.10*
2 M-D Learning Rate		1.00	.25	.22	.28	.48	.44	.28	.42	.42	.41	.40	.38	.37	.39
3 Thurstone Pat. Copying			1.00	.26	.26	.42	.38	.30	.37	.42	.37	.33	.41	.35	.41
4 Met. Readiness Wd Mng				1.00	.37	.31	.30	.36	.26	.30	.31	.26	.33	.26	.34
5 Met. Readiness Listening					1.00	.35	.37	.32	.35	.40	.38	.41	.42	.38	.37
6 Gr 1 Stanford Wd Rdg						1.00	.72	.45	.70	.72	.68	.65	.67	.65	.50
7 Gr 1 Stanford Para. Mng							1.00	.47	.65	.66	.63	.56	.62	.58	.48
8 Gr 1 Stanford Vocabulary								1.00	.41	.49	.48	.39	.49	.40	.42
9 Gr 1 Stanford Spelling									1.00	.71	.68	.68	.66	.75	.50
10 Gr 1 Stanford Wd St. Sk.										1.00	.68	.68	.67	.69	.54
11 Gr 2 MAT Wd Knowledge											1.00	.81	.82	.81	.62
12 Gr 2 MAT Wd Discrim.												1.00	.75	.88	.61
13 Gr 2 MAT Reading													1.00	.75	.59
14 Gr 2 MAT Spelling														1.00	.64
15 Gr 2 MAT Arithmetic															1.00

Note: N ranges from 579 to 656

* P <.05

P <.01 for all other correlations

Table 5.6

Regression Equations for MAT Scores
Predicted by First-Grade Pretests, CRAFT 2

Variable	C	X_1	X_2	X_3	X_4	X_5
MAT Word Knowledge	Y = 5.208	+ 0.000	+ .647	+ .473	+ .445	+ .686
MAT Word Discrim.	Y = 9.836	+ 0.000	+ .642	+ .407	+ 0.000	+ .945
MAT Reading	Y = 6.037	+ 0.000	+ .677	+ .712	+ .546	+ 1.125
MAT Spelling	Y = 3.391	+ 0.000	+ .600	+ .503	+ 0.000	+ .920

X_1 = Kindergarten Experience

X_2 = Murphy-Durrell Learning Rate

X_3 = Thurstone Pattern Copying

X_4 = Metropolitan Word Meaning

X_5 = Metropolitan Listening

Table 5.7

Regression Equations for MAT Scores Predicted by First-Grade Posttests[a], CRAFT 2

Variable	C	X_1	X_2	X_3	X_4	X_5
MAT Word Knowl.	Y = 1.673 +	.271 +	.136 +	.214 +	.388 +	.225
MAT Word Discrim.	Y = 7.269 +	.272 +	0.000 +	0.000 +	.449 +	.306
MAT Reading	Y = 1.487 +	.337 +	.153 +	.335 +	.461 +	.289
MAT Spelling	Y = .564 +	.227 +	0.000 +	0.000 +	.697 +	.267

[a] $Y = \text{Constant} + X_1 + X_2 + X_3 + X_4 + X_5$

X_1 = Stanford Word Reading

X_2 = Stanford Paragraph Meaning

X_3 = Stanford Vocabulary

X_4 = Stanford Spelling

X_5 = Stanford Word Study Skills

Table 5.8

MAT Posttest Results Adjusted by First-Grade Pretests, CRAFT 2 (Class as Unit)

Method and Approach	MAT Subtests							
	Word Knowl.		Word Discrim.		Reading		Spelling	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	20.97	9.90	23.50	7.50	24.37	14.02	18.93	8.93
PV	18.88	7.44	24.28	5.05	24.99	6.85	15.84	6.63
Total	19.93	8.82	23.89	6.41	24.68	11.04	17.38	8.02
LE Approach								
LE	16.52	8.75	21.09	5.50	22.97	9.96	12.69	8.18
LE-AV	16.59	6.69	19.39	3.74	20.92	6.93	13.82	5.81
Total	16.55	7.79	20.24	4.78	21.95	8.64	13.25	7.12

Table 5.9

MAT Posttest Results Adjusted by First-Grade Posttests,
CRAFT 2
(Class as Unit)

Method and Approach	MAT Subtests							
	Word Knowl.		Word Discrim.		Reading		Spelling	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	19.62	8.65	22.41	6.14	22.66	11.54	17.52	6.89
PV	18.89	6.71	24.34	4.10	24.97	6.14	16.05	5.31
Total	19.26	7.75	23.38	5.31	23.82	9.32	16.78	6.19
LE Approach								
LE	17.38	7.43	21.91	4.15	24.20	8.53	13.28	6.51
LE-AV	17.51	7.08	20.07	3.74	21.96	6.07	14.66	4.92
Total	17.44	7.26	20.99	4.06	23.08	7.49	13.97	5.81
All Methods	18.40	7.58	22.25	4.91	23.47	8.51	15.45	6.18

Table 5.10

Grade Equivalents for MAT Posttests Adjusted by First-Grade Pretests, CRAFT 2 (Class as Unit)

Method and Approach	Word Knowl.	Word Discrim.	Reading	Spelling[a]
SC Approach				
BR	2.7	2.5	2.3	2.7
PV	2.5	2.6	2.4	2.4
Total	2.6	2.6	2.4	2.4
LE Approach				
LE	2.3	2.3	2.3	2.1
LE-AV	2.4	2.1	2.2	2.3
Total	2.4	2.2	2.3	2.3
All Methods	2.4	2.4	2.3	2.3

[a] National norms used

Table 5.11

Grade Equivalents for MAT Posttests Adjusted by Posttests, CRAFT 2 (Class as Unit)

Method and Approach	Word Knowl.	Word Discrim.	Reading	Spelling[a]
SC Approach				
BR	2.6	2.4	2.3	2.6
PV	2.5	2.6	2.4	2.4
Total	2.5	2.5	2.3	2.5
LE Approach				
LE	2.4	2.4	2.3	2.2
LE-AV	2.4	2.2	2.2	2.3
Total	2.4	2.3	2.3	2.3
All Methods	2.4	2.4	2.3	2.3

[a] National norms used

Table 5.12

Significant *t* Comparisons between Methods on MAT Posttests, CRAFT 2 (Class as Unit)

Subtest	Mean_1	S.D._1	Mean_2	S.D._2	t
	PV		LE-AV		
Word Discrimination Adjusted by Pretests	24.25	5.32	19.33	3.96	2.18*
Word Discrimination Adjusted by Posttests	24.34	4.10	20.07	3.74	2.25*

* $P<.05$

Table 5.13

Range of Raw Score Class Means for Grade Equivalents for MAT Posttests, CRAFT 2 (Class as Unit)

Method		Word Knowl.		Word Discrim.		Reading	
		Mean	G.E.	Mean	G.E.	Mean	G.E.
BR	High	31.5	3.7	30.8	3.6	44.5	4.2
	Low	13.4	2.0	17.2	2.0	18.0	1.9
	Range	18.1	1.7	13.6	1.6	26.5	2.3
PV	High	25.1	2.9	27.1	2.9	30.0	2.6
	Low	10.2	1.8	18.7	2.2	18.9	2.0
	Range	14.9	1.1	8.4	0.7	11.1	0.6
LE	High	28.0	3.1	27.6	3.0	35.2	2.8
	Low	12.8	2.0	17.7	2.1	17.0	1.9
	Range	15.2	1.1	9.9	0.9	18.2	0.9
LE-AV	High	23.6	2.8	24.7	2.7	28.2	2.4
	Low	11.8	1.9	18.0	2.1	14.7	1.8
	Range	11.8	0.9	6.7	0.6	13.5	0.6

Table 5.14

Range of Class Means and Grade Equivalents for MAT Posttests Adjusted by First Grade Pretests, CRAFT 2 (Class As Unit)

Method		Word Knowl.		Word Discrim.		Reading	
		Mean	G.E.	Mean	G.E.	Mean	G.E.
BR	High	42.0	4.9+	37.0	4.9+	62.0	4.9+
	Low	9.8	1.8	14.1	1.8	10.9	1.7
	Range	32.2	3.1	22.9	3.1	51.1	3.2
PV	High	32.7	3.9	30.9	3.6	37.6	3.2
	Low	2.6	1.2	15.6	1.9	15.1	1.8
	Range	30.1	2.7	15.3	1.7	22.5	1.4
LE	High	35.5	4.9+	31.6	3.9	44.3	4.0
	Low	7.5	1.7	13.9	1.8	11.2	1.7
	Range	28.0	3.2	17.7	2.1	33.1	2.3
LE-AV	High	25.9	2.9	26.3	2.8	29.7	2.6
	Low	5.4	1.5	14.0	1.8	6.3	1.5
	Range	20.5	1.4	12.3	1.0	23.4	1.1

Table 5.15

Range of Class Means and Grade Equivalents for MAT Posttests Adjusted by First Grade Posttests, CRAFT 2 (Class as Unit)

Method		Word Knowl.		Word Discrim.		Reading	
		Mean	G.E.	Mean	G.E.	Mean	G.E.
BR	High	34.9	4.6	30.6	3.6	52.8	4.9+
	Low	9.3	1.8	12.6	1.7	12.3	1.7
	Range	25.6	2.8	18.0	1.9	40.5	3.2
PV	High	32.2	3.7	30.7	3.6	36.5	3.1
	Low	5.5	1.6	17.8	2.1	15.5	1.9
	Range	26.7	2.1	12.9	1.5	21.0	1.2
LE	High	32.8	3.7	28.9	3.2	40.9	3.4
	Low	9.8	1.8	15.2	1.9	13.8	1.8
	Range	23.0	1.9	13.7	1.3	27.1	1.6
LE-AV	High	28.4	3.1	26.0	2.8	31.8	2.7
	Low	8.1	1.7	13.3	1.7	10.9	1.7
	Range	20.3	1.4	12.7	1.1	20.9	1.0

Table 5.16

Analysis of Variance: Comparison of Approaches for MAT Word Discrimination Adjusted by First-Grade Pretests, CRAFT 2 (Class as Unit)

Source	SS	df	MS	F
Between Approaches	44.029	1	44.029	1.205
Within Approaches	1314.615	36	36.517	
Total	1358.644	37		

Table 5.17

Analysis of Variance: Comparison of Approaches for MAT Word Discrimination Adjusted by First-Grade Pretests Controlling for School Effects, CRAFT 2 (Class as Unit)

Source		SS	df	MS	F
Between Schools		424.993	10		
Split Session	64.538		2	32.269	<1
Non-split Session	252.177		9	28.019	<1
Between Approaches within Schools		316.715	11		
Within Approaches and Schools		616.931	16	38.558	
Total		1358.639	37		

Table 5.18

Analysis of Variance: Comparison of Methods for MAT Word Discrimination Adjusted by First-Grade Pretests, CRAFT 2 (Class as Unit)

Source		SS		df	MS	F
Between Schools		424.993		10		
PV vs. LE-AV						
Split-Session	64.538		2		32.269	<1
Non-split Session	59.575		1		59.575	1.545
PV vs. LE	104.318		3		34.773	<1
BR vs. LE	67.067		3		22.356	<1
BR vs. LE-AV	21.217		2		10.608	<1
Between Methods within Schools		316.715		11		
Within Methods and Schools		616.931		16	38.558	
Total		1358.639		37		

Table 5.19

Analysis of Variance: Comparison of Approaches for MAT Word Discrimination Adjusted by First-Grade Pretests, CRAFT 2
(Split Session Schools Deleted)
(Class as Unit)

Source	SS	df	MS	F
Between Approaches	111.062	1	111.062	2.933
Within Approaches	1135.936	30	37.864	
Total	1246.998	31		

Table 5.20

Analysis of Variance: Comparison of Approaches for MAT Word Discrimination Adjusted by First-Grade Pretests Controlling for School Effects, CRAFT 2
(Split Session Schools Deleted)
(Class as Unit)

Source	SS	df	MS	F
Between Schools	389.427	8		
Between Approaches within Schools	252.177	9	28.020	<1
Within Approaches and Schools	605.394	14	43.242	
Total	1246.998	31		

Table 5.21

Analysis of Variance: Comparison of Methods for
MAT Word Discrimination Adjusted by First Grade-Pretests, CRAFT 2
(Split Session Schools Deleted)
(Class as Unit)

Source		SS		df	MS	F
Between Schools		389.427		8		
PV vs. LE-AV	59.575		1		59.575	1.378
PV vs. LE	104.318		3		34.773	<1
BR vs. LE	67.067		3		22.356	<1
BR vs. LE-AV	21.217		2		10.608	<1
Between Methods within Schools		252.177		9		
Within Methods and Schools		605.394		14	43.242	
Total		1246.998		31		

Table 5.22

Number of Books Read Completely, Partially, and Teachers' Evaluation of Eagerness to Read and Maturity of Choices, CRAFT 2 (Class as Unit)

Method and Approach	Books Read Completely		Books Read Partially		Eagerness to Read		Maturity of Choices	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	3.75	2.83	1.32	2.18	3.33	.52	3.08	.51
PV	2.23	1.34	1.72	2.78	2.93	.50	2.64	.44
Total	2.99	2.34	1.52	2.50	3.13	.55	2.86	.52
LE Approach								
LE	6.60	6.34	.82	1.09	3.44	.60	3.01	.47
LE-AV	4.01	1.44	.40	.71	3.32	.39	2.81	.48
Total	5.30	4.78	.61	.94	3.38	.51	2.91	.48
All Methods	4.09	3.88	1.09	1.98	3.25	.54	2.88	.51

Table 5.23

San Diego Pupil Attitude Inventory, CRAFT 2 (Child as Unit)

Method and Approach	N	Mean	S.D.
SC Approach			
BR	156	18.35	3.87
PV	190	18.97	3.59
Total	346	18.69	3.73
LE Approach			
LE	132	19.09	3.97
LE-AV	140	18.94	3.45
Total	272	19.01	3.72
All Methods	618	18.83	3.73

Table 5.24

Comparison of Subsample Children to the Entire Population on the MAT Posttests, CRAFT 2

MAT Subtest	CRAFT			Subsample			
	Mean	S.D.	N	Mean	S.D.	N	*t*
Word Knowledge	18.49	8.94	629	19.27	8.92	149	-1.06
Word Discrimination	22.30	8.76	630	23.29	8.40	149	-1.38
Reading	23.73	11.57	628	24.79	11.81	149	-1.11
Spelling	15.63	9.45	626	16.83	9.01	148	-1.54
Arithmetic	2.11	.63	635	2.16	.59	128	-0.91

Table 5.25

Correlations between First Grade Pretests and Second Grade Subsample Tests (Child as Unit)

Posttests	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Met. Readiness	
			Wd. Mng.	Listen.
Gilmore				
Accuracy	.43**	.34**	.25**	.41**
Rate	.28**	.21**	.22**	.23**
Gates Wd. Pronunciation	.45**	.32**	.27**	.35**
Fry	.42**	.29**	.17*	.32**
Writing Sample				
No. of Running Words	.38**	.23**	.05	.11
No. of Different Words	.39**	.23**	.08	.16*
No. of Wds. Spell. Correct.	.40**	.24**	.08	.12
No. of Polysyllabic Words	.33**	.19*	.08	.14
Mechanics Ratio Scale	.19*	.26**	.16*	.21**

* $P < .05$

** $P < .01$

Table 5.26

Obtained Results for Subsample Measures, CRAFT 2
(Child as Unit)

Measure	BR		PV		LE		LE-AV	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Gilmore Accuracy[a]	3.36	1.56	3.74	1.32	3.17	1.36	3.44	1.48
Gilmore Rate	54.40	26.56	59.05	20.04	62.77	21.05	54.97	21.15
Gates Word Pronunciation	16.70	8.85	19.18	9.44	16.37	7.87	17.57	9.00
Fry	11.45	14.27	17.40	15.85	10.34	12.14	12.88	13.79
W.S.: No. Running Words	43.82	39.19	31.10	27.16	31.11	20.51	39.25	34.08
W.S.: No. Different Words	26.28	23.08	19.08	12.86	19.66	11.87	24.30	18.88
W.S.: No. Words Spelled Correctly	38.08	39.72	26.40	25.09	27.28	19.48	34.22	33.72
W.S.: No. Polysyllabic Words	7.28	7.14	5.00	6.76	5.34	5.57	8.80	11.65
W.S. Mechanics Ratio	54.98	26.55	51.72	24.76	59.28	24.63	59.56	28.29

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[a] Grade Equivalents

Table 5.27

Subsample Measures Adjusted by First-Grade Pretests, CRAFT 2 (Child as Unit)

Test	BR		PV		LE		LE-AV		Total	
	Mean	S.D.[a]	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Gilmore Accur.[b]	3.42	.66	4.09	.66	2.88	.76	3.28	.92	3.44	.76
Gilmore Rate	52.08	6.36	60.76	5.81	67.98	7.03	50.72	7.84	57.77	6.78
Gates Word Pron.	16.85	3.97	21.11	3.87	15.12	4.41	16.69	5.50	17.53	4.48
Fry	11.15	5.96	22.01	5.79	7.36	6.58	11.19	8.22	13.15	6.70
W.S.:No.Run.Wds.	53.82	11.27	25.86	10.32	25.49	11.48	39.76	14.78	36.49	12.08
W.S.:No.Dif.Wds.	31.66	6.52	15.84	5.88	16.83	6.52	24.94	8.45	22.43	6.91
W.S.:No.Wds. Spelled Corr.	47.23	11.60	21.31	10.55	22.72	11.74	34.50	15.15	31.64	12.38
W.S.:No.Poly.Wds	8.39	2.55	3.45	2.05	4.31	2.21	10.64	2.92	6.67	2.45
W.S.:Mech.Ratio	54.99	4.63	47.44	6.02	61.35	6.84	62.35	6.68	56.23	6.06
N	40		40		36		36		152	

[a] S.D.'s are based on Predicted scores

[b] Grade Equivalents

Table 5.28

Subsample Measures Adjusted by First-Grade Pretests, CRAFT 2
(Class as Unit)

Test	BR		PV		LE		LE-AV		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Gilmore Accuracy[a]	3.42	1.85	4.07	1.56	2.82	1.51	3.22	.99	3.40	1.59
Gilmore Rate	52.08	35.29	60.55	29.93	67.18	22.04	49.60	22.04	57.30	29.00
Gates Word Pronunciation	16.85	11.24	21.01	12.70	14.73	8.05	16.34	6.19	17.32	10.28
Fry	11.16	18.58	21.87	22.87	6.94	11.83	10.49	10.50	12.82	17.87
W.S.: No. Running Words	53.97	56.55	25.76	44.91	26.13	25.92	39.72	35.76	36.58	44.42
W.S.: No. Different Words	31.75	34.54	15.78	21.96	17.35	11.95	24.93	22.46	22.52	25.22
W.S.: No. Wds Spell. Corr.	47.39	58.44	21.21	41.19	22.94	23.94	34.47	35.75	31.65	43.56
W.S.: No. Polysyllabic Wds	8.43	10.43	3.42	10.27	4.39	8.04	10.65	12.87	6.68	10.93
W.S.: Mechanics Ratio	54.96	37.67	47.47	30.67	61.64	19.41	62.19	27.43	56.28	30.40

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[a] Scores based on Grade Equivalents

Table 5.29

Grade Equivalent Means on the Gilmore Accuracy and Gates Word Pronunciation Tests, CRAFT 2

Method and Approach	Gilmore		Gates	
	Unadjusted	Adjusted	Unadjusted	Adjusted
SC Approach				
BR	3.36	3.42	2.97	3.00
PV	3.74	4.09	3.13	3.30
Total	3.55	3.76	3.05	3.15
LE Approach				
LE	3.17	2.88	2.97	2.85
LE-AV	3.44	3.28	3.03	2.97
Total	3.30	3.08	3.00	2.91

Table 5.30

t Values for Adjusted Means on the Individual Tests, CRAFT 2
(Child as Unit)

Test	Comparison					
	BR:PV	BR:LE	BR:LE-AV	PV:LE	PV:LE-AV	LE:LE-AV
Gilmore Accuracy	- 4.78**	3.40**	0.81	7.55**	4.62**	- 2.10
Gilmore Rate	- 6.69**	-10.64**	0.88	- 4.96**	6.64**	10.25**
Gates Wd. Pronunciation	- 5.10**	1.85	0.15	6.41**	4.24**	- 1.40
Fry	- 8.67**	2.71**	- 0.03	10.49**	6.94**	- 2.28*
W.S.: No. Running Words	12.15**	11.21**	4.92**	- 0.15	- 4.98**	- 4.79**
W.S.: No. Different Words	11.96**	10.25**	4.10**	- 0.71	- 5.70**	- 4.77**
W.S.: No. Words Spell. Corr.	10.97**	9.46**	4.34**	- 0.56	- 4.61**	- 3.86**
W.S.: No. Polysyllabic Words	10.04**	7.76**	- 3.79**	- 1.79	-13.01**	-10.86**
W.S.: Mechanics Ratio	6.57**	- 4.82**	- 5.88**	- 9.58**	-10.73**	- 0.65

* $P < .05$

** $P < .01$

Table 5.31

Analysis of Variance: Fry Test Adjusted by First-Grade Pretests Across All Schools, CRAFT 2

Source	SS	df	MS	F
Between Approaches	576.096	1	576.096	1.984
Within Approaches	10453.345	36	290.371	
Total	11029.441	37		

Table 5.32

Analysis of Variance: Fry Test Score Adjusted by First-Grade Pretests Controlling for School Effects, CRAFT 2

Source	SS		df		MS	F
Between Schools		4074.722		10		
Split Session	1001.870		2		500.935	1.994
Non-split Session	1934.136		9		214.904	<1
Between Approaches within Schools		2936.006		11		
Within Approaches and Schools		4018.713		16	251.170	
Total		11029.441		37		

Table 5.33

Analysis of Variance: Fry Test Adjusted by
First-Grade Pretests for Different Pairings of Methods, CRAFT 2

Source	SS	df	MS	F
Between Schools	4074.722	10		
PV vs. LE-AV				
Split Session	1001.870	2	500.935	1.994
Non-split Session	39.062	1	39.062	<1
PV vs. LE	946.137	3	315.376	1.256
BR vs. LE	568.103	3	189.368	<1
BR vs. LE-AV	380.844	2	190.422	<1
Between Methods Within Schools	2936.006	11		
Within Methods and Schools	4018.713	16	251.170	
Total	11029.441	37		

Table 5.34

Analysis of Variance: Polysyllabic Word Score Adjusted by First-Grade Pretests Across All Schools, CRAFT 2

Source	SS	df	MS	F
Within Approaches	24.277	1	24.277	<1
Between Approaches	4077.172	36	113.255	
Total	4101.449	37		

Table 5.35

Analysis of Variance: Polysyllabic Word Score Adjusted by First-Grade Pretests Controlling for School Effects, CRAFT 2

Source		SS	df	MS	F
Between Schools		1863.656	10		
Split-Session	403.627		2	201.814	4.366*
Non-split Session	1094.680		9	121.631	2.632*
Between Approaches within Schools		1498.307	11		
Within Approaches and Schools		739.486	16	46.218	
Total		4101.449	37		

Table 5.36

Analysis of Variance: Polysyllabic Word Score Adjusted by First-Grade Pretests for Different Pairings of Methods, CRAFT 2

Source		SS		df	MS	F
Between Schools		1863.656		10		
PV vs. LE-AV						
Split Session	403.627		2		201.814	4.366*
Non-split Session	14.440		1		14.440	<1
PV vs. LE	53.804		3		17.935	<1
BR vs. LE	83.178		3		27.726	<1
BR vs. LE-AV	943.258		2		471.629	10.204**
Between Methods Within Schools		1498.307		11		
Within Methods and Schools		739.486		16	46.218	
Total		4101.449		37		

* P<.05
** P<.01

Table 5.37

Comparison of Boys and Girls on
MAT Raw Scores by Method, CRAFT 2
(Child as Unit)

Subtest	Method	Boys			Girls			
		Mean	S.D.	N	Mean	S.D.	N	t
Word Knowl.	BR	19.14	9.19	77	20.01	8.80	84	- .61
	PV	17.63	8.65	100	19.99	8.96	94	-1.86
	LE	17.34	8.68	70	18.36	8.83	66	- .67
	LE-AV	17.83	8.91	70	17.01	9.22	68	.53
	Total	17.98	8.88	317	19.00	9.03	312	-1.43
Word Discrim.	BR	22.28	8.60	76	23.16	8.76	83	- .63
	PV	22.04	8.74	101	24.95	8.24	95	-2.39*
	LE	21.65	7.84	69	21.88	8.56	67	- .16
	LE-AV	20.90	8.92	71	20.54	9.84	68	.22
	Total	21.76	8.58	317	22.86	8.97	313	-1.57
Reading	BR	23.18	11.75	77	24.38	12.04	84	- .64
	PV	23.23	10.38	99	25.89	11.75	94	-1.66
	LE	23.03	11.63	70	24.76	11.60	66	- .86
	LE-AV	23.08	11.83	70	21.70	11.51	68	.69
	Total	23.14	11.33	316	24.33	11.84	312	-1.29
Spelling	BR	15.34	10.01	76	18.80	8.33	81	-2.33*
	PV	13.94	9.54	101	18.04	9.36	95	-3.02*
	LE	13.48	8.58	69	15.68	8.83	65	-1.45
	LE-AV	14.30	9.38	71	14.88	10.07	68	- .35
	Total	14.26	9.44	317	17.05	9.29	309	-3.72*
Arithmetic	BR	21.47	5.76	76	20.90	5.65	81	.62
	PV	20.94	6.93	101	21.46	6.15	96	- .55
	LE	21.68	5.88	71	22.43	6.18	69	- .73
	LE-AV	20.79	7.22	73	19.24	6.06	68	1.38
	Total	21.20	6.53	321	21.05	6.11	314	.30

* P<.05

Table 5.38

Comparison of Boys and Girls on MAT Posttests
Adjusted by First-Grade Posttests, CRAFT 2
(Child as Unit)

Subtest	Method	Boys			Girls			
		Mean	S.D.[a]	N	Mean	S.D.[a]	N	t
Word Knowl.	BR	18.59	9.19	81	20.44	8.80	85	-1.32
	PV	17.87	8.65	102	20.72	8.96	99	-2.28*
	LE	16.89	8.68	74	18.68	8.83	71	-1.22
	LE-AV	17.40	8.91	74	17.03	9.22	70	0.24
	Total	17.72	8.88	331	19.41	9.03	325	-2.42*
Word Discrim.	BR	21.13	8.60	81	23.16	8.76	85	-1.50
	PV	22.67	8.74	102	26.84	8.24	99	-3.47**
	LE	21.72	7.84	74	21.93	8.56	71	-0.15
	LE-AV	19.60	8.92	74	20.11	9.84	70	-0.32
	Total	21.39	8.58	331	23.36	8.97	325	-2.87**
Reading	BR	21.10	11.75	81	23.65	12.04	85	-1.37
	PV	24.10	10.38	102	27.05	11.75	99	-1.88
	LE	23.20	11.63	74	26.38	11.60	71	-1.64
	LE-AV	22.63	11.83	74	21.53	11.51	70	0.56
	Total	22.84	11.33	331	24.82	11.84	325	-2.19*
Spelling	BR	13.89	10.01	81	20.76	8.33	85	-4.77**
	PV	13.45	9.54	102	19.77	9.36	99	-4.72**
	LE	11.94	8.58	74	15.99	8.83	71	-2.78**
	LE-AV	13.21	9.38	74	15.58	10.07	70	-1.45
	Total	13.17	9.44	331	18.30	9.29	325	-7.01**

[a] S.D. of raw scores

* P<.05
** P<.01

Table 5.39

Pre-First-Grade School Experience, CRAFT 2

Method	No Kgn. or Pre-Kgn. Exp.		21-100 Half Days		Full Kgn.		Kdg. Plus	
	No.	%	No.	%	No.	%	No.	%
BR	48	28.92	12	7.23	100	60.24	6	3.61
PV	58	29.00	7	3.50	129	64.50	6	3.00
LE	41	28.28	1	.69	98	67.59	5	3.45
LE-AV	27	18.62	8	5.52	108	74.48	2	1.38
Total	174	26.52	28	4.27	435	66.31	19	2.90

Table 5.40

Raw Score Stanford Posttest Results of Children with and without Full Kindergarten Experience, CRAFT 2
(Child as Unit)

Method and Approach	Mean	Word Reading			Para. Meaning			Vocabulary			Spelling			Word St.Skills		
	N	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t
SC Approach																
BR																
with	98	14.61	6.15	1.80	13.56	7.35	2.23*	15.22	4.76	2.68**	7.68	5.62	-0.13	29.25	8.12	2.20*
without	47	12.57	6.47		11.02	5.87		13.15	4.12		7.81	5.86		26.17	7.68	
PV																
with	127	14.69	6.16	1.61	10.27	7.52	2.18**	14.51	4.85	1.09	6.16	5.81	0.62	27.25	7.96	0.78
without	55	13.10	6.17		7.98	5.94		13.73	4.18		5.57	5.76		26.06	9.87	
Total																
with	225	14.65	6.15	2.40*	11.71	7.62	2.94**	14.82	4.82	2.59**	6.83	5.78	0.30	28.12	8.10	1.93
without	102	12.87	6.31		9.38	6.10		13.46	4.16		6.62	5.91		26.11	8.93	
LE Approach																
LE																
with	95	13.62	5.93	3.23**	11.70	7.22	3.19**	14.66	4.87	2.62**	8.35	5.61	5.21**	26.14	7.80	1.80
without	40	10.50	4.69		8.45	4.34		12.48	4.14		3.92	3.68		23.85	6.16	
LE-AV																
with	105	13.51	6.59	1.39	8.55	6.50	1.07	15.27	5.24	3.13**	6.61	5.79	2.12*	27.50	9.99	2.71**
without	27	11.56	6.33		7.26	5.25		11.50	5.44		4.23	4.85		21.82	9.48	
Total																
with	200	13.56	6.28	3.29**	10.04	7.02	2.70**	14.98	5.08	4.21**	7.43	5.78	4.99**	26.86	9.05	3.34**
without	67	10.92	5.44		7.97	4.76		12.09	4.72		4.05	4.21		23.03	7.74	
All Methods																
with	425	14.14	6.24	3.68**	10.93	7.40	3.74**	14.90	4.95	4.74**	7.11	5.78	2.85**	27.52	8.58	3.35**
without	169	12.10	6.06		8.82	5.65		12.92	4.44		5.65	5.48		24.89	8.61	

Note

1. In computing the value for t, the actual N of each group in the subtest was used
2. * P<.05
   ** P<.01

Table 5.41

Mean Grade Equivalents on Stanford Posttests of Children with and without Full Kindergarten Experience, CRAFT 2 (Child as Unit)

Method	Subtests of Stanford Posttests				
	Word Reading	Paragraph Meaning	Vocab.	Spell.	Wd. St. Skills
SC Approach					
BR					
with	1.5	1.6	1.5	1.6	1.5
without	1.4	1.5	1.4	1.6	1.4
PV					
with	1.5	1.5	1.5	1.5	1.4
without	1.4	1.4	1.4	1.5	1.4
Total					
with	1.5	1.5	1.5	1.6	1.5
without	1.4	1.4	1.4	1.6	1.4
LE Approach					
LE					
with	1.5	1.5	1.5	1.6	1.4
without	1.3	1.4	1.3	1.3	1.3
LE-AV					
with	1.5	1.4	1.5	1.6	1.5
without	1.4	1.3	1.3	1.3	1.3
Total					
with	1.5	1.5	1.5	1.6	1.4
without	1.3	1.4	1.3	1.3	1.3
All Methods					
with	1.5	1.5	1.5	1.6	1.5
without	1.4	1.4	1.4	1.5	1.4

Table 5.42

Results of Metropolitan Posttests for Children with and without Full Kindergarten Experience, CRAFT 2 (Child as Unit)

Method and Approach	Mean N	Word Knowledge			Word Discrimination			Reading			Spelling		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D	t
SC Approach													
BR													
With	96	20.16	9.34	2.00*	22.88	8.81	1.00	24.23	12.49	2.22*	17.16	9.33	0.78
Without	44	17.20	7.42		21.36	8.02		20.09	8.99		15.82	9.28	
PV													
With	126	19.01	8.54	0.80	23.73	8.00	0.91	24.44	11.33	0.30	15.72	9.32	-0.10
Without	57	17.86	9.11		22.44	9.15		23.93	10.35		15.88	10.04	
Total													
With	222	19.52	8.92	1.89	23.37	8.37	1.35	24.35	11.86	1.64	16.34	9.35	0.42
Without	101	17.57	8.42		21.97	8.69		22.26	9.96		15.85	9.72	
LE Approach													
LE													
With	91	19.28	8.96	2.46*	23.02	8.43	2.19*	25.89	11.84	2.50*	16.55	8.50	3.78**
Without	41	15.28	8.28		19.76	7.66		20.62	10.68		10.72	7.80	
LE-AV													
With	103	17.72	9.12	0.60	21.39	8.90	1.10	23.55	11.63	2.46*	15.37	9.39	1.24
Without	26	16.65	7.72		18.96	10.12		17.88	9.94		12.65	9.92	
Total													
With	194	18.46	9.08	2.20*	22.15	8.72	2.19*	24.66	11.79	3.30**	15.92	9.01	3.51**
Without	67	15.82	8.09		19.45	8.69		19.54	10.48		11.48	8.75	
All Methods													
With	416	19.02	9.01	2.74**	22.80	8.56	2.31*	24.49	11.83	3.35**	16.14	9.20	2.32*
Without	168	16.88	8.35		20.96	8.78		21.19	10.26		14.12	9.58	

* $P < .05$

** $P < .01$

Table 5.43

Mean Grade Equivalents on MAT Posttests
For Children with and without Kindergarten Experience, Craft 2
(Child as Unit)

Method and Approach	Word Knowledge	Word Discrim.	Reading	Spelling*
SC Approach				
BR				
with	2.6	2.5	2.3	2.5
without	2.4	2.3	2.1	2.4
PV				
with	2.5	2.6	2.3	2.4
without	2.4	2.4	2.3	2.4
Total				
with	2.6	2.5	2.3	2.4
without	2.4	2.4	2.2	2.4
LE Approach				
LE				
with	2.5	2.5	2.4	2.5
without	2.3	2.2	2.2	2.1
LE-AV				
with	2.4	2.3	2.3	2.3
without	2.4	2.1	2.0	2.2
Total				
with	2.4	2.4	2.4	2.4
without	2.3	2.1	2.1	2.1
All Methods				
with	2.5	2.5	2.3	2.4
without	2.4	2.3	2.2	2.3

* City Norms Unavailable; State Norms Used

Table 5.44

Early Readers Compared to Total Population on First-Grade Pretests and Posttests, CRAFT 2

Test	Total			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	993	9.86	8.54	51	22.93	13.27	10.83***
Capital Letter Names	1,007	11.21	8.85	49	21.82	6.24	8.31***
Low.Case Let. Names	793	8.90	7.21	35	17.71	6.96	7.13***
Total Letter Names	795	20.33	15.44	36	39.72	13.12	7.43***
Learning Rate	1,064	8.16	4.03	55	12.09	4.23	7.17***
Metropolitan Readiness							
Word Meaning	1,124	5.25	2.28	56	6.96	3.01	5.57***
Listening	1,125	6.79	2.58	56	8.77	2.28	5.71***
Thurstone							
Pattern Copying	1,062	2.68	3.84	56	5.95	5.01	6.32***
Identical Forms	1,102	5.36	6.16	56	10.71	7.23	6.44***
Posttests							
Stanford							
Word Reading	1,127	13.42	6.38	51	23.02	7.43	10.64***
Paragraph Meaning	1,111	10.17	7.26	51	20.21	10.64	9.78***
Vocabulary	1,113	14.35	5.41	51	19.02	6.77	6.10***
Spelling	1,101	6.51	5.62	51	12.96	5.75	8.12***
Word Study Skills	1,111	25.98	9.05	51	37.02	10.79	8.63***

*** P<.001

Table 5.45

Early Readers Compared to Total Population in the Language-Experience Approach on First-Grade Pretests and Posttests, CRAFT 1

Test	Total			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	517	9.67	8.31	23	21.57	10.94	6.72***
Capital Letter Names	502	10.99	8.76	22	20.91	7.16	5.19***
Low. Case Let. Names	407	8.85	7.42	14	17.43	7.16	4.17**
Total Letter Names	407	20.00	15.56	14	39.00	14.27	4.40***
Learning Rate	521	7.93	4.00	24	11.96	3.68	4.83***
Metropolitan Readiness							
Word Meaning	559	5.35	2.32	24	8.00	2.90	5.49***
Listening	559	6.71	2.66	24	9.39	2.17	4.84***
Thurstone							
Pattern Copying	522	2.85	4.13	24	6.67	5.20	4.44***
Identical Forms	536	5.66	6.29	25	10.88	6.53	4.06***
Posttests							
Stanford							
Word Reading	559	12.36	6.01	20	23.75	6.96	8.26***
Paragraph Meaning	551	8.94	6.59	20	17.85	10.78	5.89***
Vocabulary	557	13.87	5.44	20	18.85	7.04	3.99***
Spelling	547	5.86	5.36	20	11.70	6.21	4.76***
Word Study Skills	553	24.73	8.93	20	39.25	8.26	7.09***

** $P<.01$
*** $P<.001$

Table 5.46

Early Readers Compared to Total Population in the Skills-Centered Approach on First-Grade Pretests and Posttests, CRAFT 1

Test	Total			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	476	10.07	8.78	28	24.04	14.82	8.27***
Capital Letter Names	505	11.43	8.94	27	22.56	5.27	6.35***
Low. Case Let. Names	386	8.96	6.99	21	17.90	6.82	5.72***
Total Letter Names	388	20.68	15.30	22	40.18	12.31	5.84***
Learning Rate	543	8.39	4.04	31	12.19	4.60	5.16***
Metropolitan Readiness							
Word Meaning	565	5.15	2.23	32	6.19	2.86	2.60*
Listening	566	6.87	2.50	32	8.31	2.24	3.21**
Thurstone							
Pattern Copying	540	2.52	3.54	32	5.41	4.80	4.55***
Identical Forms	566	5.07	6.03	31	10.58	7.74	5.01***
Posttests							
Stanford							
Word Reading	568	14.46	6.56	31	22.55	7.68	6.76***
Paragraph Meaning	560	11.39	7.68	31	21.74	10.27	7.38***
Vocabulary	556	14.84	5.34	31	19.13	6.59	4.40***
Spelling	554	7.16	5.81	31	13.77	5.27	6.24***
Word Study Skills	558	27.22	9.00	31	35.58	11.92	5.09***

* $P<.05$

** $P<.01$

*** $P<.001$

Table 5.47

Comparison of Early Readers in the Two Approaches on First-Grade Pretests and Posttests, CRAFT 1

Test	SC Approach			LE Approach			t
	N	Mean	S.D.	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	28	24.04	14.82	23	21.57	10.94	.67
Capital Letter Names	27	22.56	5.27	22	20.91	7.16	.88
Low.Case Let. Names	21	17.90	6.82	14	17.43	7.16	.19
Total Letter Names	22	40.18	12.31	14	39.00	14.27	.25
Learning Rate	31	12.19	4.60	24	11.96	3.68	.20
Thurstone							
Pattern Copying	32	5.41	4.80	24	6.67	5.20	-.91
Identical Forms	31	10.58	7.74	25	10.88	6.53	-.15
Metropolitan Readiness							
Word Meaning	32	6.19	2.86	24	8.00	2.90	-2.29*
Listening	32	8.31	2.24	24	9.39	2.17	-1.79
Detroit Word Recognition							
Word Recognition	25	5.08	8.16	14	8.36	6.27	-1.36
Posttests							
Stanford							
Word Reading	31	22.55	7.68	20	23.75	6.96	-.56
Paragraph Meaning	31	21.74	10.27	20	17.85	10.78	1.25
Vocabulary	31	19.13	6.59	20	18.85	7.04	.14
Spelling	31	13.77	5.27	20	11.70	6.21	1.20
Word Study Skills	31	35.58	11.92	20	39.25	8.26	-1.27

* $P<.05$

Table 5.48

Mean Grade Equivalents for Early Readers and Total Population on First-Grade Stanford Posttest, CRAFT 1

Stanford Subtest	Total	Early Readers
Word Reading	1.4	1.9
Paragraph Meaning	1.5	1.7
Vocabulary	1.4	1.8
Spelling	1.6	2.0
Word Study Skills	1.4	1.9

Table 5.49

Mean Grade Equivalents for Early Readers on First-Grade Stanford Posttest by Approach, CRAFT 1

Stanford Subtest	SC Approach	LE Approach
Word Reading	1.9	1.9
Paragraph Meaning	1.8	1.7
Vocabulary	1.8	1.8
Spelling	2.1	1.9
Word Study Skills	1.9	2.0

Table 5.50

Comparison of Early Readers in the Two Approaches
on Second-Grade Metropolitan Achievement Tests, CRAFT 2

Test	SC Approach			LE Approach			t
	N	Mean	S.D.	N	Mean	S.D.	
October Tests							
Word Knowledge[a,b]	17	2.44	.55	15	2.45	.52	- .06
Reading[a,b]	17	2.51	.76	15	2.10	.53	1.72
April Tests							
Word Knowledge	17	27.12	8.76	16	26.44	6.86	.24
Word Discrimination	17	30.18	6.06	16	29.56	5.89	.29
Reading	17	33.06	12.31	16	35.19	10.10	- .53
Spelling	17	24.35	5.82	16	23.94	6.38	.19
Arithmetic[b]	16	2.53	.47	14	2.62	.49	- .49

[a] These were the only subtests administered in October

[b] Grade Equivalents since no raw scores were available

* $P<.05$

Table 5.50A

Comparison of Early Readers and Total Population on Second-Grade Metropolitan Achievement Tests, CRAFT 2

Tests	Total CRAFT	Early Reader
October Tests		
Word Knowledge	1.7	2.4
Reading	1.7	2.3
April Tests		
Word Knowledge	2.4	3.2
Word Discrimination	2.4	3.5
Reading	2.3	2.9
Spelling*	2.4	3.6
Arithmetic	2.1	2.6

* From National Norms

Table 5.51

Mean Grade Equivalents for Early Readers on Second-Grade Metropolitan Achievement Tests by Approach, CRAFT 2

Test	SC Approach	LE Approach
October Tests		
Word Knowledge[a,b]	2.44	2.45
Reading[a,b]	2.5	2.1
April Tests		
Word Knowledge	3.2	3.1
Word Discrimination	3.5	3.5
Reading	2.8	2.9
Spelling	3.6	3.6
Arithmetic[b]	2.5	2.6

[a] These were the only subtests administered in October

[b] Grade equivalents since no raw scores were available

Table 5.52

Early Readers Compared to Total CRAFT Population on Second-Grade MAT Posttests

Test	Total			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Total Population							
Word Knowledge	629	18.49	8.94	33	26.79	7.90	5.25***
Word Discrimination	630	22.30	8.75	33	29.88	5.99	4.90***
Reading	628	23.73	11.57	33	34.09	11.34	5.07***
Spelling	626	15.63	9.45	33	24.15	6.10	5.10***
Arithmetic[a]	635	2.11	.63	30	2.57	.48	3.94***
SC Approach							
Word Knowledge	355	19.15	8.92	17	27.12	8.76	3.57**
Word Discrimination	355	23.13	8.63	17	30.18	6.06	3.27**
Reading	354	24.20	11.48	17	33.06	12.31	3.09**
Spelling	353	16.46	9.52	17	24.35	5.82	3.32**
Arithmetic[a]	354	21.18	6.18	16	25.31	4.70	2.57*
LE Approach							
Word Knowledge	274	17.63	8.90	16	26.44	6.86	3.83**
Word Discrimination	275	21.24	8.80	16	29.56	5.89	3.66**
Reading	274	23.13	11.65	16	35.19	10.10	4.01**
Spelling	273	14.56	9.24	16	23.94	6.38	3.93**
Arithmetic[a]	281	2.11	.65	14	2.62	.49	2.89*

[a] Grade equivalents

* P<.05

** P<.01

*** P<.001

Table 5.53

Mean Daily Time in Minutes for
Reading Activities and Supportive Activities, CRAFT 2
(Class as Unit)

Method and Approach	Reading Time		Supportive Time		Total Time	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach						
BR	108.40	18.42	55.10	21.80	163.50	34.43
PV	102.50	12.36	59.50	17.57	162.00	26.49
Total	105.45	15.96	57.30	19.92	162.75	29.17
LE Approach						
LE	99.00	10.86	106.88	18.38	205.88	14.96
LE-AV	92.00	14.67	91.88	14.79	183.88	17.76
Total	95.50	13.37	99.38	18.29	194.88	18.96
All Methods	100.73	15.09	77.23	28.19	177.96	29.58

Table 5.54

Mean Minutes Per Day Spent on Specific Reading and Supportive Activities, CRAFT 2
(Class as Unit)

Variable	Skills-Centered Approach						Language-Experience Approach					
	BR		PV		Total		LE		LE-AV		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean.	S.D.	Mean	S.D.	Mean	S.D.
Reading Activities												
Basal Reader	54.67	15.97	45.76	6.72	50.22	13.04	1.86	5.23	4.37	5.70	3.12	5.61
Experience Chart	6.44	4.39	5.98	4.40	6.21	4.40	18.30	5.18	13.58	8.29	15.94	7.30
Individualized Reading	9.04	5.13	6.48	5.24	7.76	5.34	35.00	18.90	34.62	11.86	34.81	15.79
Sight Words	10.47	2.38	9.33	5.20	9.90	4.08	12.83	3.96	14.37	3.66	13.60	3.89
Phonic Activity	12.42	3.60	28.57	8.74	20.50	10.48	15.23	4.33	16.25	5.77	15.74	5.13
Other Reading Activities	16.11	7.11	6.04	3.26	11.08	7.48	15.64	11.35	8.48	5.22	12.06	9.53
Supportive Activities												
Listening to Stories	6.96	3.36	8.48	4.37	7.72	3.97	15.78	4.00	11.97	2.67	13.88	3.90
Listening to Poetry	1.60	1.27	2.59	1.10	2.10	1.29	3.70	2.96	3.36	1.66	3.53	2.41
Discussion	8.04	4.54	13.01	5.15	10.52	5.45	18.26	7.39	12.28	5.24	15.27	7.07
Writing	13.61	5.30	16.02	8.02	14.82	6.90	24.28	7.21	16.21	5.45	20.24	7.56
Audio-Visual Activity	1.72	1.40	3.47	2.12	2.60	2.00	2.81	4.25	11.15	3.44	6.98	5.69
A-V with Discussion	2.81	2.84	2.85	3.48	2.83	3.18	4.37	4.33	14.92	5.32	9.64	7.17
Dramatization	3.41	4.00	3.54	2.66	3.48	3.40	6.43	4.71	6.46	2.80	6.44	3.87
Art Work with Reading	7.93	4.28	5.68	4.81	6.80	4.69	17.23	8.85	8.52	3.57	12.88	8.03
Other Language Arts	8.22	5.86	3.50	2.70	5.86	5.14	13.64	13.46	6.75	4.93	10.20	10.71
Social Studies	14.12	7.83	14.51	8.18	14.32	8.01	0.00	0.00	.62	1.39	.31	1.03
Science	12.97	7.71	11.13	7.78	12.05	7.80	0.00	0.00	.78	1.36	.39	1.04

Table 5.55

Correlations of 73 Variables with MAT Adjusted Class Means, CRAFT 2

	Variable	Adjusted by Pretests				Adjusted by Posttests			
		WK[a]	WD	Rdg	Sp	WK	WD	Rdg	Sp
1	Median yrs. Educ. in commn.	-09	10	-07	02	-14	08	-10	-03
2	Median income in community	03	20	06	08	02	24	06	08
3	Teacher's Age	18	10	07	-02	26	22	14	06
4	Teacher's Educational Level	-13	01	03	-13	-14	06	07	-14
5	Type Teaching Certificate	03	-12	03	-17	05	-14	04	-21
6	Total No. Yrs. Teach. Exp.	16	03	19	-09	21	08	25	-07
7	Total Yrs. Gr. 2 Teach. Exp.	27	02	23	-05	29	01	25	-08
8	Marital Status	15	-31	-06	-31	-06	-21	05	-26
9	Number of Children	-08	-01	02	-02	00	11	14	08
10	Teacher Absence	-42*	-36*	-36*	-40*	-38*	-29	-33*	-36*
11	Teacher Pre. S-D: Basic	21	11	11	09	12	-03	00	03
12	" Pre. S-D: Indiv.	02	-20	-07	-06	06	-20	-06	-04
13	" Pre. S-D: LE	00	-05	-04	06	03	-03	-02	12
14	" Post. S-D: Basic	10	14	03	06	01	04	-09	-03
15	" Post. S-D: Indiv.	08	-05	06	00	11	-05	08	01
16	" Post. S-D: LE	-03	-14	-01	-04	-01	-17	01	-05
17	OScAR Empirical LE	25	18	33*	17	27	17	38*	19
18	" " SC	-10	-10	-28	-04	-11	-10	-33*	-03
19	" " LE High AV	-26	-31	-19	-24	-20	-24	-12	-18
20	" " LE Low AV	-16	-15	-06	-20	-13	-10	-01	-21
21	" " PV	03	10	05	04	-01	07	02	00
22	" " BR	01	-07	-15	03	-03	-16	-24	-02
23	A Priori LE	14	-05	23	-05	14	-07	26	-08
24	" SC	-03	-01	-23	05	-03	-02	-29	05
25	" Control	-22	-08	-22	00	-26	-12	-28	-01
26	Pos. Motiv. Climate	-23	-28	-15	-26	-17	-20	-07	-21
27	Neg. Motiv. Climate	-26	-24	-36*	-12	-26	-23	-40*	-09
28	OScAR Total Interchanges	-01	-05	-01	-01	-03	-09	-03	-02
29	" % Meaningful Interchanges	-04	-14	-18	-07	-01	-14	-18	-07
30	Mean Log Time All Activities	-21	-27	-17	-21	-19	-26	-15	-22
31	" " " " Rdg. "	07	07	04	18	-01	00	-03	16
32	" " " " Supp. "	-24	-30	-20	-32*	-19	-26	-14	-32*
33	" " " BR	13	21	10	23	05	13	00	19
34	" " " Exp. Chart	-11	-11	-04	-02	-13	-16	-03	-06
35	" " " Indiv. Rdg.	-16	-22	-16	-19	-12	-17	-13	-18
36	" " " Sight Words	02	-23	-11	-13	09	-19	-07	-08

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[a] WK = Word Knowledge　　Rdg = Reading

WD = Word Discrimination　　Sp = Spelling

[b] Decimal points omitted

Table 5.55 cont.

	Variable	Adjusted by Pretests				Adjusted by Posttests			
		WK	WD	Rdg	Sp	WK	WD	Rdg	Sp
37	Mean Log Time Phonic Activity	-15	-02	-13	-12	-13	04	-11	-08
38	" " " Other Rdg "	28	16	32*	25	29	13	36*	25
39	" " " Listen.to Stories	-37*	-43*	-33*	-47*	-35*	-38*	-30	-49*
40	" " " " " Poetry	-08	-16	03	-21	-07	-16	06	-25
41	" " " Discussion	-30	-16	-18	-19	-30	-10	-17	-17
42	" " " Writing	-17	-19	-23	-29	-11	-11	-19	-29
43	" " " Audio-Visual Act.	-15	-24	-14	-14	-07	-19	-05	-08
44	" " " AV with Discussion	-02	-08	01	06	00	-12	03	08
45	" " " Dramatization	-01	-11	04	-05	-06	-22	00	-14
46	" " " Art Work with Rdg	-17	-16	-16	-24	-14	-10	-14	-25
47	" " " Other Lang. Arts	01	-11	04	-11	06	-10	10	-11
48	" " " Social Studies	-01	24	07	20	-06	24	03	21
49	" " " Science	-01	20	05	19	-07	19	00	19
50	Teacher Competence	18	10	27	12	16	06	28	10
51	Child's Chronological Age	00	-11	-11	-14	08	-02	-04	-06
52	Grade 1 Pupil Absence	-16	-11	-23	-14	-12	-04	-22	-08
53	MAT 10/65 WK (GE)	73*	74*	81*	76*	56*	50*	67*	60*
54	MAT 10/65 Reading (GE)	71*	69*	75*	70*	58*	51*	64*	58*
55	Grade 2 Pupil Absence	07	20	03	29	05	20	-01	33*
56	Pupil San Diego	47*	19	40*	25	52*	19	46*	29
57	No. Books Read Completely	32*	25	37*	29	30	18	37*	24
58	No. Books Read Partially	-21	-10	-21	-15	-27	-14	-30	-22
59	Eagerness to Read	32*	37*	32*	35*	25	29	25	28
60	Maturity of Choices	26	39*	33*	40*	15	27	25	30
61	Grade 1 Class Size - 5/1/65	-23	-10	-27	-24	-23	-05	-27	-24
62	Grade 2 Class Size - 3/15/66	-13	-09	-04	-13	-13	-04	-03	-11
63	% CRAFT Children in Class	10	14	17	14	07	07	16	10
64	Teacher-Pupil Similarity	-01	-03	02	-01	05	08	09	08
65	CRAFT Teacher Attitude	18	36*	32*	31	07	24	25	18
66	4/66 MAT WK) Adjusted	100	76*	85*	76*	95*	63*	80*	70*
67	4/66 MAT WD) by	76*	100	79*	89*	64*	90*	70*	84*
68	4/66 MAT Rdg) Pretest	85*	79*	100	79*	74*	61*	95*	68*
69	4/66 MAT Sp) Grade 1	76*	89*	79*	100	62*	72*	67*	94*
70	4/66 MAT WK) Adjusted	95*	64*	74*	62*	100	64*	77*	66*
71	4/66 MAT WD) by	63*	90*	61*	72*	64*	100	64*	80*
72	4/66 MAT Rdg) Posttest	80*	70*	95*	67*	77*	64*	100	65*
73	4/66 MAT Sp) Grade 1	70*	84*	68*	94*	66*	80*	65*	100

* $P<.05$

Table 5.56

Mean Minutes Per Day Spent for Reading Activities Correlated with the MAT Subtests[a], CRAFT 2

Method and Approach	r with MAT			
	Word Knowl.	Word Discrim.	Reading	Spell.
SC Approach				
BR				
Reading time	.01	- .34	.05	- .03
Supportime time	- .23	- .30	- .13	- .20
Total time	- .19	- .43	- .08	- .17
PV				
Reading time	- .07	- .09	- .66*	- .22
Supportive time	.22	.03	- .42	.08
Total time	.12	.00	- .57	- .04
Total				
Reading time	- .01	- .30	- .57	- .08
Supportive time	- .06	- .16	- .19	- .11
Total time	- .07	- .29	- .22	- .11
LE Approach				
LE				
Reading time	.16	.16	.12	.55
Supportive time	- .59	- .54	- .50	- .69*
Total time	- .64	- .56	- .55	- .45
LE-AV				
Reading time	- .25	.26	.06	.24
Supportive time	.12	.43	.35	.23
Total time	- .10	.58	.34	.39
Total				
Reading time	- .07	.26	.12	.32
Supportive time	- .26	- .02	- .10	- .36
Total time	- .29	.16	- .02	- .12
All Methods				
Reading time	.01	.01	- .03	.16
Supportive time	- .19	- .26	- .14	- .32
Total time	- .19	- .26	- .15	- .22

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[a] MAT Subtest scores are adjusted by Grade 1 posttests

* $p < .05$

Table 5.57

Correlations of Minutes Per Day Spent on Reading and Supportive Activities with MAT Reading and Word Knowledge Scores Adjusted by First-Grade Posttests, CRAFT 2 (Class as Unit)

Variable	BR		PV		LE		LE-AV		All Methods	
	W.K.	Rdg.	W.K.	Rdg.	W.K.	Rdg.	W.K.	Rdg.	W.K.	Rdg.
Reading Activities										
Basal Reader	-.35	-.25	.19	.59	.03	.17	-.38	-.18	.05	.00
Experience Chart	.02	.04	.14	-.46	-.29	-.23	-.10	.32	-.13	-.03
Individual Reading	-.11	-.10	.35	-.16	.07	-.09	-.41	-.43	-.12	-.13
Sight Words	.62	.57	.03	-.52	-.24	-.42	.43	.49	.09	-.07
Phonic Activity	-.01	.05	-.61	-.75*	-.50	-.46	.35	-.05	-.13	-.11
Other Reading	.50	.45	.01	.08	.43	.60	.10	.51	.29	.36*
Supportive Activities										
Listening to Stories	-.51	-.46	-.24	-.55	-.58	-.68*	-.06	.11	-.35*	-.30
Listening to Poetry	.47	.69*	.21	.12	-.30	-.43	-.17	.24	-.07	.06
Discussion	-.29	-.02	-.16	-.53	-.35	-.29	-.39	-.43	-.30	-.17
Writing	-.18	-.28	.24	-.26	-.45	-.43	.10	-.07	-.11	-.19
Audio-Visual	-.22	-.14	.15	.36	-.17	-.05	.23	.09	-.07	-.05
AV with Inter. Disc.	.23	.54	-.02	-.51	-.01	.21	.23	.36	.00	.03
Dramatization	-.34	-.09	.01	-.25	.23	.01	.19	.65	-.06	.00
Art Work and Reading	-.11	-.05	.48	.10	-.55	-.60	.13	.29	-.14	-.14
Other Language Arts	-.16	-.31	.37	.36	.20	.33	.16	.44	.06	.10
Social Studies	-.47	-.28	-.14	.47	.00	.00	-.22	.10	-.06	.03
Science	-.41	-.32	-.18	.48	.00	.00	-.28	.05	-.07	.00

* P<.05

Table 5.58

Correlations of OScAR R Variables and Adjusted Stanford Word Knowledge and Paragraph Meaning, CRAFT 1

OScAR-R Variables	BR		PV		LE		LE-AV	
	WR	PM	WR	PM	WR	PM	WR	PM
Empirical L-E	-.29	-.38	.23	-.21	.64*	.26	.26	-.09
" SC	.29	.32	-.26	.21	-.32	-.37	.06	.58*
" LE high AV	-	-	-	-	-.25	-.37	.64*	.69*
" LE low AV	-	-	-	-	.13	.42	-.30	-.53
" PV	-.07	-.19	-.13	-.30	-	-	-	-
" BR	.20	.26	-.10	.09	-	-	-	-
A Priori L-E	-.30	-.26	.07	-.29	.09	.27	-.27	-.13
" SC	.36	.38	-.30	.25	-.43	-.23	.12	.54
Control	-.42	-.44	.10	-.13	-.50	-.37	-.33	-.78**
Pos. Motiv.	-.32	-.28	-.14	.21	.51	.53	.58*	.25
Neg. Motiv.	.54	.45	.35	.10	-.19	-.26	-.06	-.69*
Total Interchanges	.11	.11	.24	.20	.50	.30	.54	.04
% Meaningful Interchanges	-.49	-.39	.38	.48	.02	.22	.22	.10

* P<.05

** P<.01

Table 5.59

Means and Standard Deviations of 74 Variables for the Four Methods and Total, CRAFT 2

Variables	BR		FV		LE		LE-AV		Total	
	Mean	SD.	Mean	SD.	Mean	SD.	Mean	SD.	Mean	SD.
1. Median years adult education in community	4.00	1.15	3.90	.73	4.00	1.11	3.77	.44	3.92	.91
2. Teacher's age*	3.90	1.66	3.00	1.15	3.88	1.16	2.77	1.09	3.39	1.39
3. Teacher's educational level*	1.90	.73	2.00	1.41	2.22	.97	1.88	1.05	2.00	1.06
4. Total experience	6.90	8.41	5.70	4.19	7.33	3.57	3.22	3.07	5.81	5.56
5. Total years experience in Grade 2	4.60	7.15	2.60	2.22	3.66	2.29	1.00	1.41	3.00	4.27
6. Teacher absence*	2.30	1.82	2.60	1.71	2.88	2.42	3.11	1.26	2.71	1.87
7. Pretest Teacher's S-D Basic Scale	43.10	2.76	42.00	5.51	44.33	4.09	38.88	3.51	42.10	4.56
8. Pretest Teacher's S-D Individual Scale	40.50	7.10	36.40	5.16	37.44	3.64	43.11	4.19	39.31	5.87
9. Pretest Teacher's S-D LE Scale	39.00	6.84	34.00	5.24	37.11	5.25	42.77	8.96	38.13	7.43
10. Posttest Teacher's S-D Basic Scale	43.10	4.45	46.80	5.05	34.22	2.86	35.33	7.58	40.13	7.43
11. Posttest Teacher's S-D Individual Scale	35.30	7.46	33.50	6.09	43.88	6.79	47.00	5.00	39.63	8.56
12. Posttest Teacher's S-D LE Scale	31.80	8.54	29.10	6.74	44.22	4.73	47.00	4.71	37.63	10.04
13. OScAR Emp. LE Scale	2.20	1.22	2.80	1.03	2.22	1.20	2.22	2.63	2.37	1.65
14. OScAR Emp. Skills Centered Scale	4.50	2.71	1.20	.91	.66	.70	.22	.44	1.71	2.28
15. OScAR Emp. LE High A-V Scale	----	----	----	----	.66	.86	3.88	2.31	2.27	2.37
16. OScAR Emp. LE Low A-V Scale	----	----	----	----	.66	.70	.33	.50	.50	.63
17. OScAR Emp. FV Scale	0.00	0.00	.20	.42	----	----	----	----	.10	.31
18. OScAR Emp. BR Scale	6.20	3.45	1.80	1.39	----	----	----	----	4.00	3.43
19. OScAR A Priori LE Scale	1.10	1.52	.70	.94	3.22	2.10	2.55	2.45	1.84	2.09
20. OScAR A Priori Skills Centered Scale	5.50	3.17	2.80	1.39	1.22	1.30	1.66	2.34	2.87	2.77
21. OScAR A Priori Control Score	16.30	5.92	13.90	4.86	7.55	2.78	10.00	5.19	12.10	5.92
22. OScAR A Priori Pos. Motiv. Climate Score	14.10	6.52	13.20	3.48	13.55	3.84	13.77	6.39	13.65	5.26
23. OScAR A Priori Neg. Motiv. Climate Score	5.90	4.58	4.10	1.52	1.77	1.56	2.66	2.95	3.68	3.35
24. Total interchanges	36.60	8.73	32.20	10.16	31.00	10.57	38.77	11.59	34.63	10.74
25. % Meaningful Interchanges	75.70	11.88	57.50	18.00	76.88	21.60	73.02	13.66	70.55	18.44

*Recoded

Table 5.59 cont.

Variables	BR		FV		LE		LE-AV		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
26. Total time/day min. in all activities	163.90	34.43	161.80	26.49	205.88	14.96	184.00	17.76	178.05	30.64
27. Total time/day min. in all reading act.	108.40	18.42	102.50	12.36	99.00	10.86	92.00	14.67	100.74	15.61
28. Total time/day min. in all supp. act.	55.10	21.80	59.50	17.57	106.88	18.38	91.88	14.79	77.23	28.44
29. Basal Reader Time	54.67	15.97	45.76	6.72	1.86	5.23	4.37	5.70	27.90	25.64
30. Experience Chart	6.44	4.39	5.98	4.40	18.30	5.18	13.58	8.29	10.82	7.69
31. Individualized Reading	9.04	5.13	6.48	5.24	35.00	18.90	34.62	11.86	20.57	17.76
32. Sight Words Drill	10.47	2.38	9.33	5.20	12.83	3.96	14.37	3.66	11.65	4.40
33. Phonic Activity	12.42	3.60	28.57	8.74	15.23	4.33	16.25	5.77	18.24	8.71
34. Other Reading Activity	16.11	7.11	6.04	3.26	15.64	11.35	8.48	5.22	11.54	8.53
35. Listening to Stories	6.96	3.36	8.48	4.37	15.78	4.00	11.97	2.67	10.64	5.00
36. Listening to Poetry	1.60	1.27	2.59	1.10	3.70	2.96	3.36	1.66	2.77	2.03
37. Discussion	8.04	4.54	13.01	5.15	18.26	7.39	12.28	5.24	12.77	6.70
38. Writing	13.61	5.30	16.02	8.02	24.28	7.21	16.21	5.45	17.39	7.71
39. Audio-Visual Activity	1.72	1.40	3.47	2.12	2.81	4.25	11.15	3.44	4.67	4.71
40. A-V with Intermittent Discussion	2.81	2.84	2.85	3.48	4.37	4.33	14.92	5.32	6.06	6.42
41. Dramatization	3.41	4.00	3.54	2.66	6.43	4.71	6.46	2.80	4.88	3.92
42. Art Work with Reading	7.93	4.28	5.68	4.81	17.23	8.85	8.52	3.57	9.68	7.16
43. Other Supportive Activities	8.22	5.86	3.50	2.70	13.64	13.46	6.75	4.93	7.91	8.54
44. Social Studies	14.12	7.83	14.51	8.18	0.00	0.00	.62	1.39	7.68	9.12
45. Science	12.97	7.71	11.13	7.78	0.00	0.00	.78	1.36	6.53	8.15
46. Teacher Quality Rating	6.50	1.95	6.10	2.13	6.77	2.58	6.88	1.61	6.55	2.12
47. Pupil Absence (Grade 1)	13.19	2.24	14.63	2.40	15.24	4.20	14.14	2.80	14.28	3.07
48. Pupil Absence (Grade 2)	12.03	3.11	13.05	2.44	12.57	3.07	11.64	3.35	12.33	3.05
49. S-D Pupil Attitude Inventory	18.20	1.62	18.85	1.18	19.13	1.52	18.84	1.40	18.74	1.49
50. Number of Books Read Completely	3.75	2.83	2.23	1.34	6.60	6.34	4.01	1.44	4.09	3.88

Table 5.59 cont.

Variables	BR		PV		LE		LE-AV		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
51. Number of Books Read Partially	1.32	2.18	1.72	2.78	.82	1.09	.40	.71	1.09	1.98
52. Eagerness to Read	3.33	.52	2.93	.50	3.44	.60	3.32	.39	3.25	.54
53. Maturity of Choices	3.08	.51	2.64	.44	3.01	.47	2.81	.48	2.88	.51
54. Class Size as of 5/1/65 (Grade 1)	28.57	4.67	28.22	2.62	28.98	3.22	27.24	2.93	28.26	3.52
55. Class Size as of 3/15/66 (Grade 2)	28.50	1.26	28.40	2.75	28.11	1.83	28.11	1.90	28.29	2.03
56. % CRAFT Children in Class (Grade 2)	58.50	9.90	71.20	13.37	58.11	20.20	57.33	15.92	61.47	16.23
57. Teacher Attitude toward CRAFT Method	38.50	5.81	35.20	10.52	39.88	7.57	37.33	10.09	37.68	8.87
CRAFT 2 Posttests Adjusted by First-Grade Pretests										
58. MAT Word Knowledge	20.92	10.42	18.82	7.82	16.47	9.29	16.54	7.09	18.28	8.97
59. MAT Word Discrimination	23.45	7.91	24.25	5.32	21.03	5.82	19.33	3.96	22.11	6.28
60. MAT Reading	24.33	14.76	24.94	7.20	22.93	10.57	20.86	7.34	23.34	10.61
61. MAT Spelling	18.88	9.41	15.78	7.01	12.48	8.92	13.76	6.16	15.34	8.36
CRAFT 2 Posttests Adjusted by First-Grade Posttests										
62. MAT Word Knowledge	19.62	8.65	18.89	6.71	17.38	7.43	17.51	7.08	18.40	7.58
63. MAT Word Discrimination	22.41	6.14	24.34	4.10	21.91	4.15	20.07	3.74	22.24	4.90
64. MAT Reading	22.66	11.54	24.97	6.14	24.20	8.53	21.96	6.07	23.47	8.51
65. MAT Spelling	17.52	6.88	16.05	5.31	13.28	6.51	14.66	4.92	15.45	6.18
CRAFT 2 Subsample Measures Adjusted by Grade 1 Pretests										
66. Gilmore Accuracy	3.42	1.85	4.07	1.56	2.82	1.51	3.22	.99	3.40	1.59
67. Gilmore Rate	52.08	35.29	60.55	29.93	67.18	22.04	49.60	22.04	57.30	29.00
68. Gates Word Pron. Test	16.85	11.24	21.01	12.70	14.73	8.05	16.34	6.19	17.32	10.28
69. Fry List	11.16	18.58	21.87	22.87	6.94	11.83	10.49	10.50	12.82	17.87
70. Writing Sample--No. of running words	53.97	56.55	25.76	44.91	26.13	25.92	39.72	35.76	36.58	44.42
71. Writing Sample--No. of different words	31.75	34.54	15.78	21.96	17.35	11.95	24.93	22.46	22.52	25.22
72. Writing Sample--No. of words corr. spelled	47.39	58.44	21.21	41.19	22.94	23.94	34.47	35.75	31.65	43.56
73. Writing Sample--No. of Polysyllabic words	8.43	10.43	3.42	10.27	4.39	8.04	10.65	12.87	6.68	10.93
74. Mechanics Ratio	54.96	37.67	47.47	30.67	61.64	19.41	62.19	27.43	56.28	30.40
N (Classes)	10		10		9		9		38	

Table 5.60

Comparisons between Methods on OScAR R Scales, CRAFT 2

OScAR R Scale	Mean$_1$	S.D.$_1$	Mean$_2$	S.D.$_2$	t
Empirical SC	BR		LE-AV		
	4.50	2.71	.22	.44	4.67**
	BR		LE		
	4.50	2.71	.66	.70	4.10**
	BR		PV		
	4.50	2.71	1.20	.91	3.46**
	PV		LE-AV		
	1.20	.91	.22	.44	2.88*
Empirical LE High AV	LE-AV		LE		
	3.88	2.31	.66	.86	3.70**
Empirical BR	BR		PV		
	6.20	3.45	1.80	1.39	3.55**
A Priori LE	LE		PV		
	3.22	2.10	.70	.94	3.13**
	LE		BR		
	3.22	2.10	1.10	1.52	2.36*
A Priori SC	BR		LE		
	5.50	3.17	1.22	1.30	3.71**
	BR		LE-AV		
	5.50	3.17	1.66	2.34	2.86*
	BR		PV		
	5.50	3.17	2.80	1.39	2.34*
	PV		LE		
	2.80	1.39	1.22	1.30	2.42*
Control	BR		LE		
	16.30	5.92	7.55	2.78	3.97**
	BR		LE-AV		
	16.30	5.92	10.00	5.19	2.34*
	PV		LE		
	13.90	4.86	7.55	2.78	3.35**
Neg. Motiv. Climate	BR		LE		
	5.90	4.58	1.77	1.56	2.54*
	PV		LE		
	4.10	1.52	1.77	1.56	3.11**
% Meaningful Interchanges	BR		PV		
	75.70	11.88	57.50	18.00	2.53*

* $P<.05$

** $P<.01$

Table 5.61

Correlations of OScAR R Variables with MAT Word Knowledge and Reading Subtests Adjusted by First-Grade Posttests, CRAFT 2

OScAR R Scale	BR		PV		LE		LE-AV	
	W.K.	Reading	W.K.	Reading	W.K.	Reading	W.K.	Reading
1 Empirical LE	.30	.64*	- .12	.11	- .05	.08	.62	.61
2 " SC	- .42	- .66*	- .38	- .24	- .27	- .21	.11	.11
3 " LE high AV	.00	.00	.00	.00	- .22	- .39	- .45	- .02
4 " LE low AV	.00	.00	.00	.00	.27	.16	- .69*	- .40
5 " PV	.00	.00	- .06	- .08	.00	.00	.00	.00
6 " BR	- .32	- .50	- .32	- .35	.00	.00	.00	.00
7 A Priori LE	.39	.60	- .18	- .71*	.50	.36	.07	.51
8 " SC	- .35	- .55	.21	- .07	- .47	- .39	.21	.01
9 Control	- .40	- .43	- .65*	- .40	- .67*	- .64	- .13	.05
10 Pos. Motiv.	- .65*	- .46	- .51	- .23	.15	.22	.46	.67*
11 Neg. Motiv.	- .58	- .67*	- .76**	- .63*	- .72*	- .58	.34	.36
12 Total Interchanges	- .52	- .27	- .07	.03	.17	.20	.30	.24
13 % Meaningful Interchanges	- .49	- .76**	.20	- .17	.27	.18	- .12	.14

* P<.05

** P<.01

Table 5.62

t Comparisons of Second-Grade Teachers on the San Diego Pretests and Posttests, CRAFT 2

Method and Scale	N	Pretest		Posttest		*t*
		Mean	S.D.	Mean	S.D.	
BR						
Basic	10	43.10	2.76	43.10	4.45	0.00
Individualized	10	40.50	7.10	35.30	7.46	2.27*
Lang.-Exp.	10	39.00	6.84	31.80	8.54	2.42*
PV						
Basic	10	42.00	5.51	46.80	5.05	-2.21*
Individualized	10	36.40	5.16	33.50	6.09	1.67
Lang.-Exp.	10	34.00	5.24	29.10	6.74	3.81**
LE						
Basic	9	44.33	4.09	34.22	2.86	6.21**
Individualized	9	37.44	3.64	43.88	6.79	-2.53**
Lang.-Exp.	9	37.11	5.25	44.22	4.73	-3.10**
LE-AV						
Basic	9	38.88	3.51	35.33	7.58	1.61
Individualized	9	43.11	4.19	47.00	5.00	-2.56*
Lang.-Exp.	9	42.77	8.96	47.00	4.71	-1.40

* $P < .05$

** $P < .01$

Table 5.63

Significant t Comparisons between Methods on the San Diego Teacher Inventory Pretest, CRAFT 2

San Diego Scale	$Mean_1$	$S.D._1$	$Mean_2$	$S.D._2$	t
Basic Scale	LE		LE-AV		
	44.33	4.09	38.88	3.51	2.86*
	BR		LE-AV		
	34.10	2.76	38.88	3.51	2.73*
Individual Scale	LE-AV		PV		
	43.11	4.19	36.40	5.16	2.96*
	LE-AV		LE		
	43.11	4.19	37.44	3.64	2.89*
L-E Scale	LE-AV		PV		
	42.77	8.96	34.00	5.24	2.42*

* $P<.05$

** $P<.01$

Table 5.64

Means and Standard Deviations for Significant *t* Comparisons between Methods on the San Diego Teacher Inventory Posttests, CRAFT 2

San Diego Scale	Mean_1	S.D._1	Mean_2	S.D._2	*t*
Basic Scale	PV		LE		
	46.80	5.05	34.22	2.86	6.41**
	PV		LE-AV		
	46.80	5.05	35.33	7.58	3.62**
	BR		LE		
	43.10	4.45	34.22	2.86	4.95**
	BR		LE-AV		
	43.10	4.45	35.33	7.58	2.54*
Individual Scale	LE-AV		PV		
	47.00	5.00	33.50	6.09	5.02**
	LE-AV		BR		
	47.00	5.00	35.30	7.46	3.83**
	LE		PV		
	43.88	6.79	33.50	6.09	3.30**
	LE		BR		
	43.88	6.79	35.30	7.46	2.48*
L-E Scale	LE-AV		PV		
	47.00	4.71	29.10	6.74	6.40**
	LE-AV		BR		
	47.00	4.71	31.80	8.54	4.61**
	LE		PV		
	44.22	4.73	29.10	6.74	5.40**
	LE		BR		
	44.22	4.73	31.80	8.54	3.76**

* $P < .05$

** $P < .01$

Table 6.1

Pupil Loss by School and Borough from the Beginning of First Grade through the End of Third Grade, CRAFT 3

School	Beginning of First Grade	End of First Grade	Number Lost
A	122	104	18
B	110	87	23
C	110	90	20
D	101	79	22
E	99	87	12
F	126	105	21
G	102	92	10
H	115	88	27
I	137	99	38
J	114	95	19
K	119	99	20
L	123	103	20
	1,378	1,128	250
Brooklyn	232	191	41
Manhattan	653	541	112
Queens	493	396	97

Table 6.2

Pupils' School Location by Method, CRAFT 3

Method	Pupils Still in CRAFT Schools	Pupils No Longer in CRAFT Schools	Total
SC Approach			
BR	166	118	284
PV	193	86	279
Total	359	204	563
LE Approach			
LE	172	119	291
LE-AV	165	109	274
Total	337	228	565
All Methods	696	432	1128

Table 6.3

Distribution of Total Population by Group and Grade Placement, CRAFT 3

Placement	Group I	Group II	Group III	Grade 3 Tests Missing	Total
Grade Level					
1	1	1	3	1	6
2	46	29	23	3	101
3	551	339	111	14	1015
4		2	1	1	4
5			2		2
Total	598	371	140	19	1128
Class Placement					
CRMD	3	3	4	2	12
Jr. Guid.	7	10	5		22
Citizenship		1			1
Op.	7	2	2	2	13
Reg. Classes	581	355	129	15	1080

Table 6.4

First-Grade Pretests for Children with First through Third-Grade Data

Method and Approach	Average N	Murphy-Durrell		Thurstone		Metropolitan Readiness			
						Word Mng.		Listening	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach									
BR: Boys	55	9.47	3.94	2.60	4.33	5.66	2.28	7.33	2.48
Girls	68	6.49	2.75	2.57	3.82	5.07	2.34	6.99	2.42
Total	123	7.79	3.63	2.58	4.04	5.34	2.32	7.14	2.45
PV: Boys	68	7.03	2.95	2.37	3.65	5.54	2.23	6.67	2.50
Girls	72	8.69	4.03	3.49	4.09	4.97	2.05	7.29	2.61
Total	140	7.88	3.63	2.96	3.91	5.25	2.15	6.99	2.57
Total Skills-Centered									
Boys	123	8.12	3.46	2.47	3.97	5.59	2.25	6.97	2.51
Girls	140	7.60	3.63	3.05	3.99	5.02	2.20	7.14	2.52
Total	263	7.83	3.64	2.78	3.97	5.29	2.23	7.06	2.51
Language-Experience Approach									
LE: Boys	52	8.00	5.14	3.20	4.40	5.65	2.85	7.02	2.30
Girls	48	7.93	3.24	3.87	4.77	5.96	2.12	6.76	3.00
Total	100	7.97	4.33	3.52	4.57	5.80	2.51	6.90	2.65
LE-AV: Boys	47	8.20	3.32	3.30	4.73	5.98	3.08	7.47	2.72
Girls	45	8.09	3.62	2.56	3.25	5.57	2.18	7.17	2.34
Total	92	8.14	3.45	2.94	4.09	5.77	2.67	7.32	2.53
Total Language-Experience									
Boys	99	8.10	4.37	3.25	4.56	5.80	2.96	7.23	2.52
Girls	93	8.01	3.44	3.23	4.15	5.78	2.16	6.95	2.72
Total	192	8.05	3.92	3.23	4.35	5.78	2.60	7.09	2.62
All Methods									
Boys	222	8.11	3.89	2.82	4.26	5.68	2.59	7.08	2.52
Girls	233	7.76	3.56	3.12	4.05	5.33	2.22	7.06	2.60
Total	455	7.92	3.76	2.96	4.14	5.49	2.42	7.07	2.56

Table 6.5

First-Grade Pretests for Children with only First and Third-Grade Data

Method and Approach		Average N	Murphy-Durrell		Thurstone		Metropolitan Readiness			
			Mean	S.D.	Mean	S.D.	Word Mng. Mean	S.D.	Listening Mean	S.D.
Skills-Centered Approach										
BR:	Boys	32	12.16	4.43	2.28	2.78	5.21	2.16	7.21	1.96
	Girls	39	12.05	4.45	2.20	2.73	4.73	1.84	7.17	2.44
	Total	71	12.10	4.41	2.23	2.73	4.95	1.99	7.19	2.22
PV:	Boys	27	6.81	4.12	4.00	4.68	5.37	2.11	6.85	2.84
	Girls	37	8.86	3.77	2.58	2.60	5.41	2.28	6.78	3.00
	Total	64	7.98	4.03	3.20	3.70	5.39	2.19	6.81	2.91
Total Skills-Centered										
	Boys	59	9.67	5.05	3.12	3.93	5.28	2.14	7.05	2.40
	Girls	76	10.54	4.44	2.39	2.67	5.05	2.09	6.98	2.73
	Total	135	10.16	4.71	2.72	3.29	5.15	2.10	7.01	2.57
Language-Experience Approach										
LE:	Boys	35	6.91	3.42	2.50	3.33	5.62	1.61	6.14	2.35
	Girls	42	6.60	3.24	3.20	4.50	5.14	1.72	7.48	2.45
	Total	77	6.75	3.30	2.87	3.99	5.36	1.68	6.87	2.48
LE-AV:	Boys	35	11.00	4.45	4.36	5.66	6.03	2.21	7.33	2.66
	Girls	41	10.58	4.18	2.85	4.12	4.86	2.18	6.56	2.44
	Total	76	10.78	4.29	3.53	4.90	5.39	2.26	6.91	2.56
Total Language-Experience										
	Boys	70	8.98	4.47	3.39	4.69	5.83	1.95	6.74	2.58
	Girls	83	8.54	4.23	3.03	4.32	5.00	1.97	7.01	2.49
	Total	153	8.75	4.32	3.19	4.47	5.38	2.00	6.89	2.52
All Methods										
	Boys	129	9.29	4.75	3.27	4.36	5.58	2.06	6.88	2.51
	Girls	159	9.53	4.45	2.73	3.66	5.02	2.03	7.00	2.61
	Total	288	9.42	4.56	2.97	3.98	5.27	2.05	6.95	2.54

Table 6.6

First-Grade Pretests for Children with only First-Grade Pretest and Third-Grade Data

Method and Approach	Average N	Murphy-Durrell Mean	Murphy-Durrell S.D.	Thurstone Mean	Thurstone S.D.	Metropolitan Readiness Word Mng. Mean	Metropolitan Readiness Word Mng. S.D.	Metropolitan Readiness Listening Mean	Metropolitan Readiness Listening S.D.
Skills-Centered Approach									
BR: Boys	10	10.40	4.45	1.86	1.57	5.25	1.86	7.25	2.83
Girls	11	8.00	2.68	1.82	1.89	5.90	1.97	7.40	1.51
Total	21	9.14	3.75	1.83	1.72	5.55	1.90	7.32	2.28
PV: Boys	7	6.50	5.24	1.67	2.88	5.14	2.34	7.29	2.29
Girls	7	8.14	4.74	1.43	2.57	5.29	1.60	5.86	2.12
Total	14	7.38	4.84	1.54	2.60	5.21	1.93	6.57	2.24
Total Skills-Centered									
Boys	17	8.94	5.12	1.77	2.27	5.21	2.05	7.26	2.64
Girls	18	8.05	3.62	1.67	2.19	5.65	1.85	6.76	1.94
Total	35	8.47	4.29	1.71	2.14	5.42	1.92	7.03	2.29
Language-Experience Approach									
LE: Boys	13	6.71	3.00	1.93	3.60	4.77	1.36	6.46	2.50
Girls	14	7.43	3.06	4.93	3.29	5.40	1.76	8.73	1.53
Total	27	7.04	3.04	3.56	3.72	5.07	1.62	7.74	2.33
LE-AV: Boys	19	9.44	4.33	4.00	7.47	5.05	2.42	6.85	3.08
Girls	9	11.50	4.50	3.00	3.42	4.10	2.18	7.30	3.34
Total	28	10.08	4.40	3.70	6.48	4.73	2.35	7.00	3.12
Total Language-Experience									
Boys	32	8.24	4.04	3.12	6.22	4.94	2.07	6.70	2.87
Girls	23	8.91	4.14	4.23	3.46	4.88	2.04	8.16	2.52
Total	55	8.53	4.06	3.63	5.28	4.89	2.04	7.35	2.80
All Methods									
Boys	49	8.47	4.44	2.74	5.44	5.04	2.07	6.90	2.80
Girls	41	8.52	3.94	3.08	3.22	5.19	2.00	7.59	2.40
Total	90	8.51	4.15	2.93	4.50	5.10	2.01	7.23	2.62

Table 6.7

New York State Reading Subtests and MAT October Tests for Children with First through Third-Grade Data

Method and Approach		Average N	MAT October				New York State					
			Wd. Knowl.		Reading		Wd. Recog.		Rdg. Compre.		Total	
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach												
BR:	Boys	51	19.74	8.56	24.38	11.18	13.92	6.41	10.92	5.65	24.84	11.06
	Girls	64	18.62	8.36	25.15	10.43	12.94	6.70	10.98	5.21	23.92	10.82
	Total	115	19.12	8.43	24.81	10.74	13.37	6.56	10.96	5.38	24.33	10.88
PV:	Boys	64	19.63	8.50	23.54	10.27	12.44	6.01	10.59	4.90	23.03	9.88
	Girls	71	22.55	9.35	29.96	12.57	15.31	6.92	12.44	5.46	27.75	11.49
	Total	135	21.15	9.04	26.89	11.93	13.96	6.64	11.56	5.27	25.53	10.98
Total Skills-Centered												
	Boys	115	19.68	8.53	23.92	10.70	13.09	6.24	10.74	5.25	23.83	10.46
	Girls	135	20.67	9.11	27.66	11.84	14.20	6.92	11.75	5.39	25.95	11.34
	Total	250	20.21	8.82	25.92	11.44	13.69	6.61	11.28	5.33	24.98	10.95
Language-Experience Approach												
LE:	Boys	47	18.71	8.34	22.93	11.45	11.67	6.33	11.04	5.41	22.71	10.58
	Girls	50	20.69	9.56	27.90	11.72	13.73	7.43	11.47	6.81	25.14	13.40
	Total	97	19.77	9.03	25.60	11.80	12.71	6.95	11.26	6.13	23.94	12.09
LE-AV:	Boys	46	17.59	8.22	21.84	10.22	11.89	6.67	9.79	5.65	21.68	11.16
	Girls	44	19.93	9.10	26.41	10.69	12.93	5.70	10.74	4.51	23.67	9.11
	Total	90	18.79	8.71	24.18	10.66	12.39	6.21	10.24	5.13	22.63	10.22
Total Language-Experience												
	Boys	93	18.16	8.30	22.39	10.87	11.78	6.50	10.42	5.57	22.20	10.88
	Girls	94	20.33	9.36	27.20	11.27	13.36	6.67	11.13	5.86	24.45	11.62
	Total	187	19.30	8.89	24.92	11.29	12.56	6.61	10.77	5.69	23.31	11.25
All Methods												
	Boys	208	19.03	8.47	23.26	10.80	12.49	6.39	10.59	5.40	23.08	10.68
	Girls	229	20.53	9.22	27.47	11.61	13.86	6.83	11.50	5.60	25.34	11.48
	Total	437	19.82	8.86	25.50	11.39	13.20	6.63	11.06	5.49	24.26	11.11

Table 6.8

Raw Scores on MAT Posttests (April, 1967)
for Children with First through Third-Grade Data

Method and Approach	Average N	Arithmetic Concepts		Word Knowledge		Reading	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach							
BR							
Boys	58	22.40	11.29	18.88	9.42	17.44	7.12
Girls	69	20.69	10.84	18.77	9.21	16.64	7.04
Total	127	21.47	11.04	18.82	9.27	17.01	7.06
PV							
Boys	70	25.84	10.80	19.79	10.91	17.07	6.86
Girls	74	23.74	10.19	23.04	11.39	19.17	7.37
Total	144	24.76	10.51	21.46	11.24	18.15	7.18
Total Skills-Centered							
Boys	128	24.28	11.16	19.38	10.27	17.24	6.98
Girls	143	22.27	10.62	20.98	10.61	17.95	7.32
Total	271	23.22	10.89	20.22	10.45	17.62	7.15
Language-Experience Approach							
LE							
Boys	53	24.37	10.77	18.19	10.65	18.17	7.47
Girls	51	23.62	14.27	22.35	12.09	20.83	8.26
Total	104	24.00	12.57	20.23	11.52	19.47	7.94
LE-AV							
Boys	48	23.77	10.51	20.62	10.80	16.94	6.54
Girls	46	23.84	9.84	22.77	10.58	19.23	7.98
Total	94	23.80	10.13	21.68	10.69	18.07	7.34
Total Language Experience							
Boys	101	24.08	10.65	19.33	10.79	17.59	7.07
Girls	97	23.72	12.37	22.55	11.40	20.07	8.17
Total	198	23.90	11.47	20.92	11.16	18.81	7.69
All Methods							
Boys	229	24.19	10.94	19.36	10.50	17.39	7.02
Girls	240	22.85	11.38	21.62	10.96	18.81	7.75
Total	469	23.50	11.14	20.52	10.76	18.12	7.41

Table 6.9

Intercorrelations of 28 First, Second and Third-Grade Variables, CRAFT 3

(Child is Unit)

VARIABLE	1	2	3	4	5	6	7	8	9	10
1 Pre Gr. 1 School Exp.	1.000	0.072	0.128**	0.069	0.123**	-0.108*	0.145**	0.120*	0.201**	0.117*
2 M-D Learning Rate	0.072	1.000	0.258**	0.231**	0.269**	-0.070	0.457**	0.432**	0.254**	0.391**
3 Thurstone Pattern Copying	0.128**	0.258**	1.000	0.269**	0.280**	-0.080	0.423**	0.414**	0.304**	0.397**
4 Met. Readiness Wd Mng	0.069	0.231**	0.269**	1.000	0.344**	-0.020	0.280**	0.259**	0.354**	0.232**
5 Met. Readiness Listening	0.123**	0.269**	0.280**	0.344**	1.000	-0.079	0.328**	0.352**	0.299**	0.325**
6 Gr 1 Pupil Absence	-0.108*	-0.070	-0.080	-0.020	-0.079	1.000	-0.179**	-0.143**	-0.061	-0.157**
7 Gr 1 Stanford Wd Rdg	0.145**	0.457**	0.423**	0.280**	0.328**	-0.179**	1.000	0.706**	0.451**	0.680**
8 Gr 1 Stanford Para. Mng	0.120*	0.432**	0.414**	0.259**	0.352**	-0.143**	0.706**	1.000	0.466**	0.632**
9 Gr 1 Stanford Vocabulary	0.201**	0.254**	0.304**	0.354**	0.299**	-0.061	0.451**	0.466**	1.000	0.400**
10 Gr 1 Stanford Spelling	0.117*	0.391**	0.397**	0.232**	0.325**	-0.157**	0.680**	0.632**	0.400**	1.000
11 Gr 1 Stanford Wd St. Sk.	0.115*	0.387**	0.452**	0.256**	0.370**	-0.136**	0.720**	0.635**	0.472**	0.681**
12 Gr 2 Pupil Absence	-0.144**	-0.037	-0.019	-0.052	-0.064	0.564**	-0.064	-0.096*	-0.044	-0.094*
13 Gr 2 Pupil San Diego	0.011	0.126**	0.097*	0.121**	0.165**	-0.076	0.215**	0.188**	0.142**	0.180**
14 Gr 2 MAT Wd Knowledge	0.107*	0.399**	0.356**	0.294**	0.341**	-0.063	0.664**	0.614**	0.462**	0.660**
15 Gr 2 MAT Wd Discrim.	0.078	0.361**	0.349**	0.236**	0.369**	-0.130**	0.626**	0.549**	0.365**	0.649**
16 Gr 2 MAT Reading	0.143**	0.372**	0.411**	0.320**	0.401**	-0.098*	0.665**	0.615**	0.488**	0.651**
17 Gr 2 MAT Spelling	0.086	0.334**	0.359**	0.212**	0.342**	-0.119*	0.626**	0.557**	0.381**	0.723**
18 Gr 2 No. Book Read Compl.	0.124**	0.174**	0.139**	0.178**	0.082	-0.139**	0.185**	0.277**	0.203**	0.355**
19 Gr 2 No. Book Read Part.	0.035	-0.093*	-0.081	-0.111*	-0.021	0.014	-0.071	-0.060	-0.030	-0.068
20 Gr 2 Eagerness to Read	0.035	0.324**	0.238**	0.186**	0.231**	-0.137**	0.410**	0.418**	0.275**	0.447**
21 Gr 2 Maturity of Choices	0.070	0.335**	0.279**	0.224**	0.301**	-0.146**	0.454**	0.450**	0.331**	0.527**
22 Gr 3 10/66 MAT Wd Knowl.	0.102*	0.406**	0.377**	0.284**	0.371**	-0.108*	0.689**	0.603**	0.431**	0.659**
23 Gr 3 10/66 MAT Reading	0.117*	0.378**	0.352**	0.276**	0.404**	-0.084	0.627**	0.577**	0.401**	0.582**
24 Gr 3 WTS Wd Recognition	0.090*	0.405**	0.378**	0.263**	0.348**	-0.107*	0.664**	0.636**	0.364**	0.667**
25 Gr 3 WTS Reading Compr.	0.126**	0.361**	0.317**	0.295**	0.366**	0.022	0.597**	0.570**	0.434**	0.515**
26 Gr 3 WTS Reading Total	0.117*	0.418**	0.382**	0.302**	0.390**	-0.053	0.690**	0.643**	0.432**	0.651**
27 Gr 3 4/67 MAT Wd Knowl.	0.069	0.369**	0.341**	0.338**	0.353**	-0.064	0.647**	0.567**	0.475**	0.574**
28 Gr 3 4/67 MAT Reading	0.097*	0.323**	0.349**	0.328**	0.370**	-0.038	0.557**	0.569**	0.474**	0.532**

Table 6.9 cont.

VARIABLE	11	12	13	14	15	16	17	18	19	20
1 Pre Gr. 1 School Exp.	0.115*	-0.144**	0.011	0.107*	0.078	0.141**	0.086	0.124**	0.035	0.035
2 M-D Learning Rate	0.387**	-0.037	0.126**	0.395**	0.361**	0.372**	0.334**	0.174**	-0.093*	0.324**
3 Thurstone Pattern Copying	0.452**	-0.019	0.097*	0.356**	0.349**	0.411**	0.359**	0.139**	-0.081	0.238**
4 Met. Readiness Wd Mng	0.256**	-0.052	0.121**	0.294**	0.236**	0.320**	0.212**	0.178**	-0.111*	0.186**
5 Met. Readiness Listening	0.370**	-0.064	0.165**	0.341**	0.369**	0.401**	0.342**	0.082	-0.021	0.231**
6 Gr 1 Pupil Absence	-0.136**	0.564**	-0.076	-0.063	-0.130**	-0.098*	-0.115*	-0.139**	0.014	-0.137**
7 Gr 1 Stanford Wd Rdg	0.720**	-0.064	0.219**	0.664**	0.626**	0.665**	0.626**	0.185**	-0.071	0.410**
8 Gr 1 Stanford Para. Mng	0.635**	-0.096*	0.188**	0.614**	0.549**	0.615**	0.557**	0.277**	-0.060	0.418**
9 Gr 1 Stanford Vocabulary	0.472**	-0.044	0.142**	0.462**	0.365**	0.488**	0.381**	0.203**	-0.030	0.275**
10 Gr 1 Stanford Spelling	0.681**	-0.094*	0.180**	0.660**	0.649**	0.651**	0.723**	0.355**	-0.068	0.447**
11 Gr 1 Stanford Wd St. Sk.	1.000	-0.034	0.201**	0.656**	0.665**	0.669**	0.667**	0.152**	-0.125**	0.416**
12 Gr 2 Pupil Absence	-0.034	1.000	-0.037	-0.047	-0.057	-0.045	-0.046	-0.133**	-0.026	-0.127**
13 Gr 2 Pupil San Diego	0.201**	-0.037	1.000	0.294**	0.194**	0.271**	0.189**	0.189**	0.005	0.185**
14 Gr 2 MAT Wd Knowledge	0.656**	-0.047	0.294**	1.000	0.802**	0.823**	0.811**	0.347**	-0.122**	0.518**
15 Gr 2 MAT Wd Discrim.	0.665**	-0.057	0.194**	0.802**	1.000	0.746**	0.870**	0.267**	-0.058	0.538**
16 Gr 2 MAT Reading	0.669**	-0.045	0.271**	0.823**	0.746**	1.000	0.761**	0.352**	-0.114*	0.511**
17 Gr 2 MAT Spelling	0.667**	-0.046	0.189**	0.811**	0.870**	0.761**	1.000	0.284**	-0.074	0.558**
18 Gr 2 No. Book Read Compl.	0.152**	-0.133**	0.189**	0.347**	0.267**	0.352**	0.284**	1.000	-0.166**	0.312**
19 Gr 2 No. Book Read Part.	-0.125**	-0.026	0.005	-0.122**	-0.058	-0.114*	-0.074	-0.166**	1.000	-0.020
20 Gr 2 Eagerness to Read	0.416**	-0.127**	0.185**	0.518**	0.538**	0.511**	0.558**	0.312**	-0.020	1.000
21 Gr 2 Maturity of Choices	0.480**	-0.118*	0.128**	0.564**	0.579**	0.539**	0.591**	0.278**	0.031	0.702**
22 Gr 3 10/66 MAT Wd Knowl.	0.673**	-0.049	0.251**	0.832**	0.810**	0.789**	0.809**	0.286**	-0.090*	0.545**
23 Gr 3 10/66 MAT Reading	0.594**	-0.001	0.271**	0.765**	0.718**	0.827**	0.742**	0.275**	-0.091*	0.531**
24 Gr 3 NYS Wd Recognition	0.634**	-0.054	0.188**	0.827**	0.835**	0.780**	0.824**	0.275**	-0.054	0.556**
25 Gr 3 NYS Reading Compr.	0.558**	0.035	0.265**	0.676**	0.597**	0.694**	0.594**	0.231**	-0.086	0.432**
26 Gr 3 NYS Reading Total	0.653**	-0.014	0.243**	0.827**	0.791**	0.808**	0.782**	0.278**	-0.075	0.545**
27 Gr 3 4/67 MAT Wd Knowl.	0.611**	-0.066	0.271**	0.765**	0.706**	0.730**	0.728**	0.283**	-0.131**	0.487**
28 Gr 3 4/67 MAT Reading	0.549**	-0.015	0.211**	0.679**	0.634**	0.726**	0.620**	0.321**	-0.120**	0.496**

Table 6.9 cont.

VARIABLE	21	22	23	24	25	26	27	28
1 Pre Gr. 1 School Exp.	0.070	0.102*	0.117*	0.090*	0.126**	0.117*	0.069	0.097*
2 M-D Learning Rate	0.335**	0.406**	0.378**	0.405**	0.361**	0.418**	0.365**	0.320**
3 Thurstone Pattern Copying	0.279**	0.377**	0.352**	0.378**	0.317**	0.382**	0.341**	0.349**
4 Met. Readiness Wd Mng	0.224**	0.284**	0.276**	0.263**	0.295**	0.302**	0.338**	0.328**
5 Met. Readiness Listening	0.301**	0.371**	0.404**	0.348**	0.366**	0.390**	0.353**	0.370**
6 Gr 1 Pupil Absence	-0.146**	-0.108*	-0.084	-0.107*	0.022	-0.053	-0.064	-0.038
7 Gr 1 Stanford Wd Rdg	0.454**	0.689**	0.627**	0.664**	0.597**	0.690**	0.647**	0.557**
8 Gr 1 Stanford Para. Mng	0.450**	0.603**	0.577**	0.606**	0.570**	0.643**	0.567**	0.565**
9 Gr 1 Stanford Vocabulary	0.331**	0.431**	0.401**	0.364**	0.434**	0.432**	0.475**	0.474**
10 Gr 1 Stanford Spelling	0.527**	0.659**	0.582**	0.667**	0.515**	0.651**	0.574**	0.5[illegible]2**
11 Gr 1 Stanford Wd St. Sk.	0.480**	0.673**	0.594**	0.634**	0.558**	0.653**	0.611**	0.549**
12 Gr 2 Pupil Absence	-0.118*	-0.049	-0.001	-0.054	0.035	-0.014	-0.066	-0.015
13 Gr 2 Pupil San Diego	0.128**	0.251**	0.271**	0.188**	0.265**	0.243**	0.271**	0.211**
14 Gr 2 MAT Wd Knowledge	0.564**	0.832**	0.765**	0.827**	0.676**	0.827**	0.765**	0.679**
15 Gr 2 MAT Wd Discrim.	0.579**	0.813**	0.718**	0.835**	0.597**	0.791**	0.706**	0.634**
16 Gr 2 MAT Reading	0.535**	0.789**	0.827**	0.780**	0.694**	0.808**	0.730**	0.726**
17 Gr 2 MAT Spelling	0.591**	0.809**	0.742**	0.824**	0.594**	0.782**	0.728**	0.620**
18 Gr 2 No. Book Read Compl.	0.278**	0.286**	0.275**	0.275**	0.231**	0.278**	0.283**	0.321**
19 Gr 2 No. Book Read Part.	0.031	-0.090*	-0.091*	-0.054	-0.086	-0.075	-0.131**	-0.120**
20 Gr 2 Eagerness to Read	0.702**	0.545**	0.531**	0.556**	0.532**	0.545**	0.487**	0.496**
21 Gr 2 Maturity of Choices	1.000	0.551**	0.508**	0.575**	0.457**	0.569**	0.496**	0.501**
22 Gr 3 10/66 MAT Wd Knowl.	0.551**	1.000	0.819**	0.853**	0.725**	0.867**	0.807**	0.736**
23 Gr 3 10/66 MAT Reading	0.508**	0.819**	1.000	0.791**	0.755**	0.845**	0.765**	0.741**
24 Gr 3 NYS Wd Recognition	0.575**	0.853**	0.791**	1.000	0.677**	0.931**	0.758**	0.688**
25 Gr 3 NYS Reading Compr.	0.457**	0.725**	0.755**	0.677**	1.000	0.899**	0.713**	0.674**
26 Gr 3 NYS Reading Total	0.569**	0.867**	0.845**	0.931**	0.899**	1.000	0.805**	0.744**
27 Gr 3 4/67 MAT Wd Knowl.	0.496**	0.807**	0.765**	0.758**	0.713**	0.805**	1.000	0.798**
28 Gr 3 4/67 MAT Reading	0.561**	0.736**	0.741**	0.688**	0.674**	0.744**	0.798**	1.000

* P<.05
** P<.01

Table 6.10

Multiple Regression Equations for CRAFT 3, Group I

	Prediction from First-Grade Pretests								
Metropolitan Elem.	C	+	X_1	+	X_2	+	X_3	+	X_4
Reading	7.009		0.371		0.363		0.503		0.609
Word Knowledge	3.836		0.704		0.484		0.786		0.754

	Prediction from Second-Grade Posttests						
	C	+	X_5	+	X_6	+	X_7
Reading	4.834		0.149		0.128		0.294
Word Knowledge	-0.672		0.457		0.276		0.230

X_1 = Murphy-Durrell Learning Rate

X_2 = Thurstone, Pattern Copying

X_3 = Metropolitan Readiness,Word Meaning

X_4 = Metropolitan Readiness, Listening

X_5 = MAT Word Knowledge, CRAFT 2

X_6 = MAT Word Discrimination, CRAFT 2

X_7 = MAT Reading, CRAFT 2

Table 6.11

MAT Posttests (April, 1967) Adjusted by CRAFT 1 Pretests
and by CRAFT 2 Posttests for Children with First through Third-Grade Data

Method and Approach	N	Adjusted by CRAFT 1 Pretests				Adjusted by CRAFT 2 Posttests			
		Word Know.		Reading		Word Know.		Reading	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach									
BR									
Boys	59	16.14	17.19	16.16	13.40	17.40	13.11	16.00	10.46
Girls	70	18.60	16.30	16.10	12.46	17.58	12.77	16.01	10.38
Total	129	17.47	16.69	16.13	12.85	17.50	12.87	16.01	10.38
PV									
Boys	71	20.20	21.22	16.77	13.37	19.43	16.95	16.09	11.16
Girls	75	25.07	19.62	19.93	13.10	22.67	16.50	18.79	11.28
Total	146	22.70	20.49	18.39	13.28	21.11	16.75	17.48	11.27
Total Skills-Centered									
Boys	130	18.36	19.60	16.49	13.39	18.51	15.36	16.05	10.85
Girls	145	21.95	18.38	18.08	12.94	20.21	15.03	17.45	10.94
Total	275	20.25	18.98	17.33	13.13	19.42	15.16	16.79	10.89
Language-Experience Approach									
LE									
Boys	54	15.64	18.34	18.09	13.13	17.34	15.73	19.06	11.18
Girls	52	23.69	22.04	23.23	14.70	22.38	17.07	22.35	12.36
Total	106	19.59	20.55	20.61	14.10	19.81	16.52	20.67	11.83
LE-AV									
Boys	48	19.75	18.69	15.09	11.24	22.14	14.65	16.97	9.58
Girls	47	24.98	19.00	20.35	14.25	24.42	16.59	20.25	13.47
Total	95	22.33	18.92	17.69	13.02	23.19	15.53	18.48	11.59
Total Language-Experience									
Boys	102	17.57	18.62	16.68	12.37	19.60	15.42	18.08	10.51
Girls	99	24.30	20.66	21.86	14.56	23.35	16.88	21.35	12.94
Total	201	20.88	19.84	19.23	13.68	21.41	16.15	19.63	11.77
All Methods									
Boys	232	18.01	19.18	16.57	12.95	19.09	15.33	16.92	10.66
Girls	244	22.90	19.37	19.61	13.75	21.52	15.78	19.03	11.85
Total	476	20.52	19.35	18.13	13.40	20.30	15.58	17.97	11.31

Table 6.13

Kindergarten Experience for Children with First through Third-Grade Data

Method and Approach	Total N	Full Kindergarten Exp.		No Kindergarten Exp.	
		N	Per Cent	N	Per Cent
Skills-Centered Approach					
BR: Boys	53	37	69.81	16	30.19
Girls	62	39	62.90	23	37.10
Total	115	76	66.09	39	33.91
PV: Boys	65	49	75.38	16	24.62
Girls	72	54	75.00	18	25.00
Total	137	103	75.18	34	24.82
Total Skills-Centered					
Boys	118	86	72.88	32	27.12
Girls	134	93	69.40	41	30.60
Total	252	179	71.03	73	28.97
Language-Experience Approach					
LE: Boys	52	36	69.23	16	30.77
Girls	49	35	71.43	14	28.57
Total	101	71	70.30	30	29.70
LE-AV: Boys	45	36	80.00	9	20.00
Girls	45	43	95.56	2	4.44
Total	90	79	87.78	11	12.22
Total Language-Experience					
Boys	97	72	74.23	25	25.77
Girls	94	78	82.98	16	17.02
Total	191	150	78.53	41	21.47
All Methods					
Boys	215	158	73.49	57	26.51
Girls	228	171	75.00	57	25.00
Total	443	329	74.27	114	25.73

Table 6.14

Obtained Scores on April MAT Posttests for Children with First through Third Grade Data, Kindergarten and No Kindergarten

Method and Approach		N		Word Knowledge				Reading			
				Full Kgn.		No Kgn.		Full Kgn.		No Kgn.	
		Full Kgn.	No Kgn.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach											
BR:	Boys	37	16	18.62	9.58	17.94	9.64	17.65	7.41	16.50	7.51
	Girls	39	23	19.41	11.24	17.39	6.29	17.51	8.25	15.74	5.20
	Total	76	39	19.03	10.40	17.62	7.73	17.58	7.80	16.05	6.17
PV:	Boys	49	16	17.80	10.56	24.31	10.47	16.67	7.61	17.75	4.52
	Girls	54	18	22.67	11.84	23.94	10.06	18.89	7.45	20.06	7.46
	Total	103	34	20.35	11.46	24.12	10.10	17.84	7.57	18.97	6.27
Total Skills-Centered Approach											
	Boys	86	32	18.15	10.16	21.12	10.56	17.09	7.54	17.12	6.23
	Girls	93	41	21.30	11.70	20.26	8.79	18.31	7.82	17.64	6.65
	Total	179	73	19.79	11.04	20.65	9.48	17.73	7.67	17.41	6.38
Language-Experience Approach											
LE:	Boys	36	16	19.72	11.31	15.38	9.14	19.06	7.59	16.50	7.55
	Girls	35	14	24.29	12.72	16.50	9.03	23.09	8.81	15.43	3.20
	Total	71	30	21.97	12.16	15.90	8.95	21.04	8.40	16.00	5.87
LE-AV:	Boys	36	9	21.19	11.71	21.22	7.28	17.03	6.88	19.22	3.80
	Girls	43	2	23.33	10.74	17.50	12.02	19.58	8.09	12.50	4.95
	Total	79	11	22.35	11.17	20.55	7.69	18.42	7.62	18.00	4.63
Total Language-Experience Approach											
	Boys	72	25	20.46	11.54	17.48	8.97	18.04	7.31	17.48	6.59
	Girls	78	16	23.76	11.68	16.62	9.46	21.16	8.60	15.06	3.60
	Total	150	41	22.17	11.65	17.15	8.87	19.66	8.10	15.78	5.88
All Methods											
	Boys	158	57	19.20	10.87	19.52	10.06	17.52	7.45	17.28	6.40
	Girls	171	57	22.42	11.76	19.24	9.13	19.61	8.31	15.92	6.07
	Total	329	114	20.88	11.38	19.39	9.42	18.61	7.93	16.82	6.25

Table 6.15

Grade Equivalent Comparison between Children with and without Kindergarten Experience, CRAFT 3

	MAT[a] Word Knowledge		MAT Reading	
	With	Without	With	Without
SC Approach				
BR	3.3	3.2	3.4	3.3
PV	3.3	3.7	3.4	3.5
Total	3.3	3.4	3.4	3.4
LE Approach				
LE	3.6**	3.1	3.7**	3.3
LE-AV	3.6	3.4	3.4	3.4
Total	3.6**	3.1	3.6**	3.3
All Methods	3.4	3.3	3.5	3.4

[a] Metropolitan Achievement Test

** Significantly higher at .01

Table 6.16

Third-Grade Raw Scores for Early Readers, CRAFT 3

Test	APPROACH						t
	Skills Centered			Language Experience			
	N	Mean	S.D.	N	Mean	S.D.	
October Metropolitan Achievement Tests							
Word Knowledge	19	28.05	8.08	18	28.22	8.24	- .06
Reading	19	37.26	7.56	18	33.06	10.30	1.37
New York State Tests							
Word Recognition	20	19.85	5.41	17	19.06	5.50	.43
Comprehension	20	15.65	6.05	17	13.88	6.18	.85
Total	20	35.50	10.60	17	32.94	10.42	.72
April Metropolitan Achievement Tests							
Arithmetic	21	21.48	9.17	17	20.59	9.95	.28
Word Knowledge	22	27.82	11.37	18	33.39	11.12	-1.52
Reading	22	23.04	8.34	18	26.78	8.24	-1.38

Table 6.17

Mean Grade Equivalents for Early Readers on Third-Grade Metropolitan Achievement Tests, CRAFT 3

Test	Skills Centered	Language Experience
October Metropolitan Achievement Tests		
Word Knowledge	3.3	3.3
Reading	3.2	2.9
April Metropolitan Achievement Tests		
Arithmetic	3.7	3.7
Word Knowledge	4.1	4.7
Reading	4.1	4.6

Table 6.18

Early Readers Compared to Total Population, CRAFT 3
(Child as Unit)

	SC Total		SC Early Readers			LE Total		LE Early Readers			Total		Early Readers		
	Mean	S.D.	Mean	S.D.	t	Mean	S.D.	Mean	S.D.	t	Mean	S.D.	Mean	S.D.	t
10/66 MAT															
Word Knowledge	20.12	8.80	28.05	8.08	3.82**	18.45	9.05	28.22	8.24	4.45**	19.31	8.96	28.14	8.16	5.91**
Reading	25.64	11.47	37.26	7.56	4.30**	23.84	11.55	33.06	10.30	3.29**	24.77	11.54	35.22	9.24	5.43**
N.Y.S. Tests															
Word Recog.	13.22	6.62	19.85	5.41	4.36**	12.01	6.82	19.06	5.50	4.13**	12.63	6.74	19.49	5.46	6.11**
Reading Comp.	10.96	5.34	15.65	6.05	3.83**	10.51	5.65	13.88	6.18	2.39*	10.65	5.52	14.84	6.18	4.55**
Total Reading	24.16	11.05	35.50	10.60	4.47**	22.50	11.58	32.94	10.42	3.60**	23.36	11.34	34.32	10.59	5.80**
4/67 MAT															
Arithmetic	23.54	10.83	21.48	9.17	-0.85	25.06	10.78	20.59	9.95	-1.66	24.26	10.84	21.08	9.54	-1.78
Word Knowledge	19.71	10.32	27.82	11.37	3.60**	19.76	10.69	33.39	11.12	5.26**	19.74	10.50	30.32	11.59	6.29**
Reading	17.53	7.04	23.04	8.34	3.59**	17.77	7.56	26.78	8.24	4.92**	17.64	7.30	24.72	8.50	6.06**

* $P<.05$
** $P<.01$

Table 6.19

Grade Equivalent Comparisons between Early Readers and Total Population, CRAFT 3

	SC Total	SC Early Readers	LE Total	LE Early Readers	Total	Early Readers
10/66 MAT						
Word Knowledge	2.6	3.3	2.4	3.3	2.5	3.3
Reading	2.5	3.2	2.4	2.9	2.5	3.0
4/67 MAT						
Arithmetic	3.9	3.7	3.9	3.7	3.9	3.7
Word Knowledge	3.3	4.1	3.3	4.7	3.3	4.4
Reading	3.4	4.1	3.4	4.6	3.4	4.2

Table 6.20

Differences in Grade Equivalent Comparisons of Early Readers and Total Population through Grades 1 - 3

SAT 4/65	Total	Early Readers	D
Word Reading	1.4	1.9	0.5
Paragraph Meaning	1.5	1.7	0.2
Vocabulary	1.4	1.8	0.4
MAT 4/66			
Word Knowledge	2.4	3.2	0.8
Word Discrimination	2.4	3.5	1.1
Reading	2.3	2.9	0.6
MAT 4/67			
Word Knowledge	3.3	4.4	1.1
Reading	3.4	4.2	0.8

Table 6.21

New York State Reading Subtests and MAT October Tests for Children with only First and Third-Grade Data

Method and Approach		Average N	MAT October				New York State					
			Wd. Knowl.		Reading		Wd. Recog.		Rdg. Compre.		Total	
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach												
BR:	Boys	29	19.48	7.60	22.83	9.86	11.36	6.27	9.89	5.02	20.89	10.51
	Girls	37	20.67	9.50	27.47	12.31	14.00	6.79	11.84	5.76	25.84	12.02
	Total	66	20.14	8.66	25.40	11.44	12.88	6.66	11.02	5.51	23.74	11.59
PV:	Boys	26	18.86	9.17	23.43	10.52	12.60	5.72	10.20	5.92	22.80	10.49
	Girls	32	22.31	7.84	28.72	11.17	13.09	6.94	10.78	5.01	23.88	11.13
	Total	58	20.70	8.59	26.25	11.10	12.88	6.38	10.53	5.38	23.40	10.77
Total Skills-Centered												
	Boys	55	19.18	8.41	23.12	10.20	11.94	6.05	10.04	5.46	21.79	10.54
	Girls	69	21.44	8.80	28.06	11.80	13.58	6.87	11.36	5.46	24.94	11.66
	Total	124	20.41	8.63	25.81	11.29	12.88	6.53	10.79	5.46	23.58	11.22
Language-Experience Approach												
LE:	Boys	32	14.97	8.42	18.09	9.01	9.00	5.64	8.13	3.87	17.13	8.41
	Girls	41	16.64	7.38	20.79	11.70	10.54	5.87	9.79	4.35	20.33	9.52
	Total	73	15.88	7.87	19.56	10.58	9.87	5.78	9.07	4.20	18.94	9.13
LE-AV:	Boys	33	19.53	9.64	25.82	11.45	11.62	7.36	11.41	5.89	23.03	12.49
	Girls	37	19.56	8.89	25.64	11.44	12.97	6.91	11.18	5.80	24.03	12.09
	Total	70	19.54	9.19	25.73	11.37	12.36	7.10	11.29	5.80	23.57	12.19
Total Language-Experience												
	Boys	65	17.22	9.33	21.90	10.99	10.35	6.71	9.82	5.28	20.18	11.11
	Girls	78	17.99	8.24	23.03	11.83	11.74	6.52	10.48	5.17	22.16	11.02
	Total	143	17.62	8.72	22.50	11.39	11.12	6.60	10.19	5.19	21.27	11.03
All Methods												
	Boys	120	18.11	8.98	22.45	10.66	11.08	6.46	9.92	5.36	20.92	10.88
	Girls	147	19.60	8.68	25.37	12.08	12.62	6.75	10.90	5.33	23.48	11.42
	Total	267	18.90	8.79	24.02	11.46	11.95	6.63	10.47	5.33	22.35	11.18

Table 6.22

Raw Scores on MAT Posttests (April, 1967) for Children with only First and Third-Grade Data

Method and Approach	Average N	Arithmetic Concepts		Word Knowledge		Reading	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach							
BR: Boys	33	25.47	9.48	19.64	9.61	16.52	6.49
Girls	41	24.90	10.31	19.41	11.73	18.05	7.58
Total	74	25.15	9.89	19.51	10.77	17.36	7.11
FV: Boys	28	21.68	11.12	17.11	8.44	16.68	7.24
Girls	36	24.26	11.70	21.22	10.32	20.30	6.00
Total	64	23.11	11.43	19.45	9.71	18.74	6.76
Total Skills-Centered							
Boys	61	23.70	10.45	18.48	9.18	16.59	6.84
Girls	77	24.60	10.99	20.27	11.12	19.12	6.97
Total	138	24.20	10.68	19.48	10.29	18.00	6.98
Language-Experience Approach							
LE: Boys	35	26.82	10.08	16.81	8.26	14.39	5.94
Girls	42	28.90	9.32	17.21	7.65	17.19	5.57
Total	77	27.96	9.66	17.03	7.89	15.91	5.88
LE-AV: Boys	35	25.21	10.07	19.39	10.32	16.06	6.94
Girls	42	25.44	10.00	20.65	11.40	18.74	8.45
Total	77	25.33	9.97	20.08	10.87	17.52	7.87
Total Language-Experience							
Boys	70	26.02	10.11	18.10	9.44	15.22	6.51
Girls	84	27.17	9.82	18.93	9.86	17.96	7.20
Total	154	26.64	9.90	18.56	9.62	16.72	6.99
All Methods							
Boys	131	24.93	10.34	18.27	9.32	15.85	6.70
Girls	161	25.94	10.48	19.57	10.50	18.51	7.12
Total	292	25.48	10.35	18.99	9.95	17.32	7.01

Table 6.23

MAT Posttests (April, 1967) Adjusted by Pretests for Children with only First and Third-Grade Data

Method and Approach		N	Word Knowledge		Reading	
			Mean	S.D.	Mean	S.D.
Skills-Centered Approach						
BR:	Boys	33	16.38	17.87	13.74	11.83
	Girls	41	16.34	20.80	17.07	13.52
	Total	74	16.36	19.42	15.58	12.82
PV:	Boys	28	14.22	15.29	15.47	13.21
	Girls	37	21.76	18.01	22.51	10.62
	Total	65	18.51	17.18	19.48	12.22
Total Skills-Centered						
	Boys	61	15.39	16.77	14.53	12.51
	Girls	78	18.91	19.71	19.65	12.53
	Total	139	17.36	18.44	17.40	12.69
Language-Experience Approach						
LE:	Boys	36	14.61	15.79	11.70	11.50
	Girls	43	14.66	13.09	16.59	9.71
	Total	79	14.64	14.29	14.36	10.78
LE-AV:	Boys	36	14.88	20.41	11.98	13.50
	Girls	43	20.10	20.71	19.20	15.21
	Total	79	17.72	20.61	15.91	14.81
Total Language-Experience						
	Boys	72	14.74	18.25	11.84	12.54
	Girls	86	17.38	17.54	17.90	12.85
	Total	158	16.13	17.80	15.14	12.98
All Methods						
	Boys	133	15.04	17.59	13.07	12.60
	Girls	164	18.11	18.62	18.73	12.72
	Total	297	16.73	18.11	16.20	12.90

Table 6.24

Kindergarten Experience for Children with only First and Third-Grade Data

Method and Approach		Total N	Full Kindergarten Exp.		No Kindergarten Exp.	
			N	Per Cent	N	Per Cent
Skills-Centered Approach						
BR:	Boys	33	16	48.48	17	51.52
	Girls	38	20	52.63	18	47.37
	Total	71	36	50.70	35	49.30
PV:	Boys	26	12	46.15	14	53.85
	Girls	37	21	56.76	16	43.24
	Total	63	33	52.38	30	47.62
Total Skills-Centered						
	Boys	59	28	47.46	31	52.54
	Girls	75	41	54.67	34	45.33
	Total	134	69	51.49	65	48.51
Language-Experience Approach						
LE:	Boys	32	21	65.62	11	34.38
	Girls	38	26	68.42	12	31.58
	Total	70	47	67.14	23	32.86
LE-AV:	Boys	31	18	58.06	13	41.94
	Girls	37	20	54.05	17	45.95
	Total	68	38	55.88	30	44.12
Total Language Experience						
	Boys	63	39	61.90	24	38.10
	Girls	75	46	61.33	29	38.67
	Total	138	85	61.59	53	38.41
All Methods						
	Boys	122	67	54.92	55	45.08
	Girls	150	87	58.00	63	42.00
	Total	272	154	56.62	118	43.38

Table 6.25

Obtained Scores on April MAT Posttests for Children with only First and Third-Grade Data, Kindergarten and No Kindergarten

Method and Approach		N		Word Knowledge				Reading			
				Full Kgn.		No Kgn.		Full Kgn.		No Kgn.	
		Full Kgn.	No Kgn.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach											
BR:	Boys	16	17	18.00	9.99	21.18	9.28	16.31	6.97	16.71	6.20
	Girls	20	18	21.35	10.88	17.56	13.27	18.70	7.11	17.33	8.71
	Total	36	35	19.86	10.48	19.31	11.49	17.64	7.05	17.03	7.49
PV:	Boys	12	14	17.00	9.45	15.79	6.75	17.58	9.10	15.07	5.03
	Girls	21	16	22.05	10.31	20.12	10.58	20.67	6.28	19.81	5.79
	Total	33	30	20.21	10.16	18.10	9.12	19.55	7.44	17.60	5.87
Total Skills-Centered Approach											
	Boys	28	31	17.57	9.78	18.74	8.66	16.85	7.98	15.97	5.76
	Girls	41	34	21.71	10.60	18.76	12.15	19.58	6.82	18.50	7.58
	Total	69	65	20.03	10.33	18.75	10.48	18.55	7.30	17.29	6.80
Language-Experience Approach											
LE:	Boys	21	13	17.67	8.63	16.38	7.58	15.00	6.02	13.54	6.15
	Girls	26	13	17.00	7.71	15.23	6.64	17.58	4.99	15.46	5.53
	Total	47	26	17.30	8.05	15.81	7.00	16.43	5.56	14.50	5.81
LE-AV:	Boys	18	14	18.83	10.05	18.29	10.39	15.00	7.44	15.71	5.68
	Girls	20	17	21.25	12.84	18.29	7.66	20.20	8.59	16.59	7.84
	Total	38	31	20.11	11.51	18.29	8.84	17.74	8.38	16.19	6.85
Total Language-Experience Approach											
	Boys	39	27	18.20	9.33	17.37	9.20	15.00	6.71	14.66	6.01
	Girls	46	30	18.85	10.48	16.96	7.39	18.72	6.92	16.10	6.96
	Total	85	57	18.56	9.85	17.16	8.15	17.02	7.00	15.42	6.45
All Methods											
	Boys	67	58	17.94	9.53	18.10	8.94	15.77	7.32	15.36	5.91
	Girls	87	64	20.20	10.63	17.92	10.24	19.12	6.89	17.38	7.39
	Total	154	122	19.22	10.10	18.01	9.50	17.70	7.18	16.42	6.70

Table 6.26

New York State Reading Subtests and MAT October Tests for Children with only First-Grade Pretest and Third-Grade Data

Method and Approach		Average N	MAT October				New York State					
			Wd. Knowl.		Reading		Wd. Recog.		Rdg. Compre.		Total	
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach												
BR:	Boys	10	17.70	8.74	21.40	9.12	8.20	4.73	6.80	3.29	15.00	7.15
	Girls	10	21.82	8.98	27.36	14.27	13.55	6.68	11.30	3.27	25.40	9.52
	Total	20	19.86	8.90	24.52	12.19	11.00	6.32	9.05	3.94	20.20	9.78
PV:	Boys	6	11.60	3.44	15.20	7.40	7.00	2.45	7.67	5.05	14.67	4.72
	Girls	5	18.50	10.90	23.00	12.74	14.20	8.01	10.80	5.76	25.00	12.79
	Total	11	15.36	8.78	19.45	10.94	10.27	6.54	9.09	5.36	19.36	10.28
Total Skills-Centered												
	Boys	16	15.67	7.95	19.33	9.07	7.75	4.07	7.13	4.06	14.88	6.35
	Girls	15	20.65	9.83	25.82	13.91	13.77	7.16	11.13	4.27	25.27	10.72
	Total	31	18.31	9.11	22.78	12.02	10.74	6.41	9.06	4.50	19.90	9.97
Language-Experience Approach												
LE:	Boys	9	15.63	10.24	21.36	11.26	13.25	7.05	9.75	5.01	23.00	11.86
	Girls	14	15.60	10.01	21.13	11.77	10.14	7.70	9.50	5.97	19.64	12.84
	Total	23	15.84	10.04	21.44	11.51	11.62	7.46	9.76	5.59	21.38	12.37
LE-AV:	Boys	15	19.00	10.78	25.29	11.80	13.38	8.20	11.25	7.64	24.62	15.13
	Girls	10	20.56	9.51	27.11	15.85	13.00	8.46	10.70	7.42	23.70	15.43
	Total	25	19.61	10.11	26.00	13.21	13.23	8.13	11.04	7.41	24.27	14.95
Total Language-Experience												
	Boys	24	17.52	10.68	23.56	11.73	13.34	7.84	10.75	6.91	24.08	14.14
	Girls	24	17.46	10.11	23.37	13.75	11.33	8.15	10.00	6.64	21.33	14.12
	Total	48	17.65	10.25	23.62	12.56	12.51	7.88	10.47	6.69	22.98	13.93
All Methods												
	Boys	40	16.83	9.79	21.97	11.00	11.10	7.14	9.30	6.20	20.40	12.51
	Girls	39	18.78	10.12	24.38	13.87	12.27	7.87	10.43	5.87	22.85	13.06
	Total	79	17.91	9.82	23.28	12.35	11.81	7.38	9.01	5.96	21.76	12.60

Table 6.27

Raw Scores on MAT Posttests (April, 1967) for Children with only First-Grade Pretest and Third-Grade Data

Method and Approach		Average N	Arithmetic Concepts		Word Knowledge		Reading	
			Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach								
BR:	Boys	12	25.18	10.24	15.42	8.23	14.83	7.26
	Girls	11	22.00	12.53	18.45	6.62	17.45	4.30
	Total	23	23.59	11.28	16.87	7.50	16.09	6.04
PV:	Boys	7	20.86	9.10	14.43	6.00	11.57	3.64
	Girls	7	26.60	11.08	18.43	14.12	15.14	5.70
	Total	14	23.25	9.93	16.43	10.62	13.36	4.96
Total Skills-Centered								
	Boys	19	23.50	10.04	15.06	7.50	13.63	6.38
	Girls	18	23.44	12.28	18.44	10.21	16.55	5.02
	Total	37	23.47	10.82	16.70	8.81	15.06	5.81
Language-Experience Approach								
LE:	Boys	14	27.33	11.32	17.85	12.56	15.69	5.04
	Girls	15	27.14	7.90	17.60	11.76	17.33	7.45
	Total	29	27.23	9.43	17.71	11.91	16.57	6.39
LE-AV:	Boys	20	22.20	10.31	21.15	10.97	16.70	9.33
	Girls	10	21.88	9.99	18.20	10.24	18.60	10.00
	Total	30	22.09	9.97	20.17	10.65	17.33	9.43
Total Language-Experience								
	Boys	34	24.48	11.07	19,85	11.73	16.30	7.94
	Girls	25	25.23	9.08	17.84	11.18	17.84	8.58
	Total	59	24.82	10.02	18.98	11.34	16.96	8.12
All Methods								
	Boys	53	24.09	10.68	18.10	10.64	15.32	7.52
	Girls	43	24.48	10.58	18.09	10.79	17.30	7.33
	Total	96	24.27	10.38	18.09	10.49	16.22	7.37

Table 6.28

MAT Posttests (April, 1967) Adjusted by Pretests for Children with only First-Grade Pretest and Third-Grade Data

Method and Approach		N	Word Knowledge		Reading	
			Mean	S.D.	Mean	S.D.
Skills-Centered Approach						
BR:	Boys	12	9.28	16.87	11.07	14.73
	Girls	11	16.40	13.01	16.84	8.57
	Total	23	12.68	15.25	13.83	12.27
PV:	Boys	7	9.88	10.17	5.96	7.55
	Girls	7	18.02	24.34	13.51	10.42
	Total	14	13.95	18.41	9.73	9.58
Total Skills-Centered						
	Boys	19	9.50	14.76	9.19	12.81
	Girls	18	17.03	18.29	15.54	9.47
	Total	37	13.16	16.53	12.28	11.50
Language-Experience Approach						
LE:	Boys	14	17.86	22.90	15.12	8.42
	Girls	15	12.97	22.83	15.11	13.85
	Total	29	15.09	22.97	14.97	11.53
LE-AV:	Boys	20	20.88	17.29	14.80	14.93
	Girls	10	14.82	17.43	18.60	17.50
	Total	30	18.86	17.28	16.07	15.63
Total Language-Experience						
	Boys	34	19.64	19.85	14.93	12.66
	Girls	25	13.71	20.86	16.51	15.51
	Total	59	17.01	20.36	15.53	13.78
All Methods						
	Boys	53	16.00	18.83	12.87	13.01
	Girls	43	15.10	19.89	16.10	13.33
	Total	96	15.53	19.07	14.28	13.04

Table 6.29

Kindergarten Experience for Children with only First-Grade Pretest and Third-Grade Data

Method and Approach			Total N	Full Kindergarten Exp. N	Full Kindergarten Exp. Per Cent	No Kindergarten Exp. N	No Kindergarten Exp. Per Cent
Skills-Centered Approach							
BR:	Boys		11	7	63.64	4	36.36
	Girls		9	6	66.67	3	33.33
		Total	20	13	65.00	7	35.00
PV:	Boys		7	4	57.14	3	42.86
	Girls		7	3	42.86	4	57.14
		Total	14	7	50.00	7	50.00
Total Skills-Centered							
	Boys		18	11	61.11	7	38.89
	Girls		16	9	56.25	7	43.75
		Total	34	20	58.82	14	41.18
Language-Experience Approach							
LE:	Boys		14	6	42.86	8	57.14
	Girls		13	11	84.62	2	15.38
		Total	27	17	62.96	10	37.04
LE-AV:	Boys		15	9	60.00	6	40.00
	Girls		10	8	80.00	2	20.00
		Total	25	17	68.00	8	32.00
Total Language-Experience							
	Boys		29	15	51.72	14	48.28
	Girls		23	19	82.61	4	17.39
		Total	52	34	65.38	18	34.62
All Methods							
	Boys		47	26	55.32	21	44.68
	Girls		39	28	71.79	11	28.21
		Total	86	54	62.79	32	37.21

Table 6.30

Obtained Scores on April MAT Posttests for Children with only First-Grade Pretest and Third-Grade Data, Kindergarten and No Kindergarten

Method and Approach		N		Word Knowledge				Reading			
				Full Kgn.		No Kgn.		Full Kgn.		No Kgn.	
		Full Kgn.	No Kgn.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered Approach											
BR:	Boys	7	4	16.71	8.28	11.00	7.53	15.57	6.97	10.75	5.56
	Girls	6	3	17.67	4.41	14.67	5.13	17.83	5.81	16.00	1.73
	Total	13	7	17.15	6.53	12.57	6.40	16.62	6.31	13.00	4.93
PV:	Boys	4	3	16.50	7.55	11.67	1.53	12.25	4.86	10.67	1.53
	Girls	3	4	14.00	10.82	21.75	16.92	13.33	7.23	16.50	4.93
	Total	7	7	15.43	8.32	17.43	13.15	12.71	5.44	14.00	4.76
Total Skills-Centered Approach											
	Boys	11	7	16.63	8.02	11.29	5.79	14.36	6.49	10.72	4.32
	Girls	9	7	16.45	7.42	18.72	13.68	16.33	6.66	16.28	3.90
	Total	20	14	16.55	7.25	15.00	10.62	15.25	6.30	13.50	4.87
Language-Experience Approach											
LE:	Boys	5	8	22.80	15.35	14.75	10.35	17.40	4.39	14.62	5.40
	Girls	11	2	15.27	12.37	21.50	3.54	17.64	8.20	17.00	7.07
	Total	16	10	17.62	13.34	16.10	9.63	17.56	7.07	15.10	5.40
LE-AV:	Boys	9	10	21.44	10.86	18.50	8.83	14.78	4.74	15.90	9.40
	Girls	8	2	18.00	10.78	19.00	11.31	18.00	7.89	21.00	21.21
	Total	17	12	19.82	10.63	18.58	8.69	16.29	6.42	16.75	10.82
Total Language-Experience Approach											
	Boys	14	18	21.92	12.66	16.83	9.72	15.72	4.79	15.33	7.90
	Girls	19	4	16.42	11.80	20.25	8.47	17.79	8.07	19.00	15.93
	Total	33	22	18.75	12.07	17.45	9.21	16.90	6.77	16.00	8.82
All Methods											
	Boys	25	25	19.59	11.18	15.28	9.14	15.12	5.64	14.04	7.38
	Girls	28	11	16.43	10.59	19.28	12.07	17.32	7.68	17.27	10.18
	Total	53	36	17.92	10.57	16.50	9.86	16.11	6.60	15.03	7.63

Table 6.31

Analysis of Variance Results for CRAFT 3

Variables	df		F
Amount CRAFT X Method			
LE			
Word Knowledge Adjusted by Pretests	2x211		1.778
Reading " " "	2x211		6.573**
LE-AV			
Word Knowledge Adjusted by Pretests	2x201		1.289
Reading " " "	2x201		0.387
PV			
Word Knowledge Adjusted by Pretests	2x222		1.896
Reading " " "	2x222		1.805
BR			
Word Knowledge Adjusted by Pretests	2x223		0.773
Reading " " "	2x223		0.309
Sex X Approach			
Group I			
Word Knowledge Adjusted by Pretests	1x472	A[a] ✓	0.188
		S	6.702**
		SxA	0.309
Reading " " "	1x472	A	2.687
		S	7.513**
		SxA	1.913
Word Knowledge Adjusted by Posttests	1x474	A	2.195
		S	3.501
		SxA	0.406
Reading " " "	1x484	A	7.881**
		S	5.410*
		SxA	0.852
Group II			
Word Knowledge Adjusted by Pretests	1x293	A	0.860
		S	0.454
		SxA	0.958
Reading " " "	1x293	A	1.479
		S	13.499**
		SxA	0.305
Group III			
Word Knowledge Adjusted by Pretests	1x92	A	0.539
		S	0.004
		SxA	2.543
Reading " " "	1x92	A	0.741
		S	1.182
		SxA	0.253

Table 6.31 cont.

Variables	df		F
Sex X Method			
Group I			
Word Knowledge Adjusted by Pretests	3x468	M	2.178
	1x468	S	6.840**
	3x468	MxS	0.247
Reading " " "	3x468	M	2.225
	1x468	S	7.003**
	3x468	MxS	0.882
Word Knowledge Adjusted by Posttests	3x468	M	2.805*
	1x468	S	3.595
	3x468	MxS	0.509
Reading " " "	3x468	M	3.581*
	1x468	S	5.095*
	3x468	MxS	0.598
Group II			
Word Knowledge Adjusted by Pretests	3x289	M	0.720
	1x289	S	0.410
	3x289	MxS	1.196
Reading " " "	3x289	M	1.523
	1x289	S	13.204**
	3x289	MxS	0.282
Group III			
Word Knowledge Adjusted by Pretests	3x88	M	0.289
	1x88	S	0.012
	3x88	MxS	0.764
Reading " " "	3x88	M	0.379
	1x88	S	1.069
	3x88	MxS	0.223

* $P<.05$
** $P<.01$
a/ A = Approach; M = Method; S = Sex

Table 7.1

Distribution of Methods in Schools, Replication 1

	METHOD					N Classes
School	BR	PV	LE	LE-AV	Pilot	
A					3	3
B					1	1
C	1		1			2
D		2		1		3
E		1	1			2
G[a]	2		1			3
H		2		2		4
I	2					2
J	1			2		3
K		1		2		3
L		2	2			4
N Classes	6	8	5	7	4	30

[a] School F did not participate

Table 7.2

Educational Level of the Teachers, Replication 1

Variable	Less than BA	BA	BA+	MA	MA+	N
SC Approach						
BR	0	1	4	0	1	6
PV	0	2	5	0	1	8
Total	0	3	9	0	2	14
LE Approach						
LE	0	1	2	1	1	5
LE-AV	2	2	2	1	0	7
Total	2	3	4	2	1	12
Pilot	0	0	2	0	2	4
Total, All Methods	2	6	15	2	5	30

Table 7.3

Age of Teachers, Replication 1

	SC			LE			Pilot
	BR	PV	Total	LE	LE-AV	Total	
N	6	8	14	5	7	12	4
Mean	32.00	35.25	33.86	32.80	42.00	38.17	37.75
Median	25.5	27	26.5	32	41	33.5	36
S.D.	10.82	14.45	13.11	7.88	16.13	14.08	11.84
Range	23-50	22-60	22-60	22-46	22-67	22-67	25-54

Table 7.4

Total Years of Teaching Experience for Teachers, Replication 1

	SC			LE			Pilot
	BR	PV	Total	LE	LE-AV	Total	
N	6	8	14	5	7	12	4
Mean	5.33	8.12	6.93	6.40	15.71	11.83	11.25
Median	4	6	4.5	4	10	8.5	6
S.D.	3.09	7.44	6.14	5.54	14.31	12.38	11.52
Range	2-10	1-23	1-23	1-16	1-41	1-41	2-31

Table 7.5

First-Grade Experience for Teachers, Replication 1

	SC Approach			LE Approach			Pilot
	BR	PV	Total	LE	LE-AV	Total	
N	6	9	15	5	7	12	4
Mean	3.17	5.00	4.27	3.40	10.00	7.25	3.00
Median	3	4	3	3	6	4	2
S.D.	1.46	3.20	2.79	2.06	10.14	8.51	1.73
Range	1-5	1-11	1-11	1-7	0-30	0-30	2-6

Table 7.6

Metropolitan Readiness Results for Final Population, Replication 1

Method and Approach	Word Meaning		Listening		Matching		Alphabet		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	N
SC Approach									
BR	7.00	2.84	8.95	2.45	5.06	2.88	7.05	3.95	139
PV	5.54	2.13	8.14	2.47	4.98	2.87	6.86	4.53	176
Total	6.18	2.57	8.50	2.49	5.02	2.87	6.94	4.28	315
LE Approach									
LE	6.79	2.84	8.65	2.24	4.91	2.77	8.11	4.52	123
LE-AV	5.54	2.43	8.46	2.69	4.38	2.65	6.12	4.39	148
Total	6.11	2.70	8.55	2.50	4.62	2.72	7.02	4.56	271
Pilot	5.40	2.40	8.34	2.42	6.40	3.04	8.30	5.16	93
Total	6.04	2.60	8.49	2.48	5.04	2.88	7.16	4.53	679

Table 7.7 -

Comparison of Final Replication 1 Population with CRAFT 1 Final Population and Norms on Metropolitan Readiness Subtests

Subtest	CRAFT 1			Replication 1			Norms		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Word Meaning	5.25	2.28	1124	6.04	2.60	678	8.67	3.10	12,225
Listening	6.79	2.58	1125	8.49	2.47	678	8.89	2.82	12,225
Matching	---	---	---	5.04	2.88	671	7.50	4.04	12,225
Alphabet	---	---	---	7.15	4.52	671	9.39	4.70	12,225

Table 7.8

Replication Grade 1 Pretests and Posttests Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	678	678	671	671	671	722	682	791	789	785	790	784	791	118	118	118	118
1 Met. Read. Wd. Mng.	1.00	.40**	.23**	.29	-.01	.10**	.00	-.24**	.37**	.37**	.33**	.26**	.30**	.16	.20*	.07	.21*
2 Met. Read. Listening		1.00	.32**	.37**	-.01	.21**	-.05	.25**	.35**	.30**	.32**	.31**	.34**	.22*	.18*	.00	.25**
3 Met. Read. Matching			1.00	.51**	-.04	.28**	-.03	.27**	.38**	.41**	.38**	.44**	.47**	.28**	.15	.17*	.22*
4 Met. Read. Alphabet				1.00	.01	.29**	-.04	.26**	.51**	.49**	.37**	.59**	.56**	.55**	.46**	.23**	.51**
5 No. Days Pre-Kindgtn.					1.00	-.09*	-.03	.04	.02	.00	.01	.02	.03	-.09	-.06	-.04	-.08
6 No. Days Kindergarten						1.00	-.11*	.12*	.19**	.21**	.15**	.27**	.23**	.20*	.06	.15	.18*
7 No. Days in Head Start							1.00	-.07*	.00	-.04	.03	-.03	.01	-.05	-.04	-.06	-.11
8 S.D. Pupil Att. Inv.								1.00	.33**	.34**	.26**	.28**	.35**	.33**	.31**	.22*	.36**
9 Stanford Wd. Rdg.									1.00	.68**	.43**	.70**	.68**	.74**	.51**	.51**	.72**
10 Stanford Par. Mng.										1.00	.36**	.69**	.61**	.64**	.54**	.40**	.66**
11 Stanford Vocabulary											1.00	.43**	.51**	.40**	.32**	.15	.36**
12 Stanford Spelling												1.00	.74**	.87**	.64**	.50**	.83**
13 Stanford Wd. Skills													1.00	.75**	.57**	.50**	.75**
14 Gilmore Accuracy														1.00	.64**	.62**	.90**
15 Gilmore Rate															1.00	.20*	.58**
16 Fry List																1.00	.72**
17 Gates Wd. Pron.																	1.00*

* P < .05

** P < .01

Table 7.9

Stanford Raw Score Results, Replication 1
(Child as Unit)

Method and Approach	Word Reading		Paragraph Mean.		Vocabulary		Spelling		Word St. Skills		Mean
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	N
SC Approach											
BR	13.56	7.09	10.68	6.92	14.49	4.76	7.12	5.31	25.40	7.92	137
PV	14.04	5.59	10.34	6.48	14.76	4.69	6.96	5.54	28.10	8.60	173
Total	13.83	6.30	10.49	6.68	14.64	4.72	7.03	5.44	26.91	8.42	310
LE Approach											
LE	14.51	7.23	11.70	7.99	13.98	4.22	6.11	5.41	25.32	7.19	123
LE-AV	13.07	6.08	9.86	6.68	14.73	5.02	5.62	5.83	25.39	8.89	145
Total	13.72	6.67	10.70	7.36	14.39	4.69	5.84	5.65	25.36	8.16	268
Pilot	17.43	8.46	12.68	8.12	14.63	5.00	9.44	7.35	31.54	10.05	91
All Methods	14.26	6.89	10.86	7.19	14.52	4.76	6.87	5.91	26.88	8.81	669

Table 7.10

Stanford Raw Score Results, Replication 1

(Class as Unit)

Method and Approach	N	Stanford Subtests									
		Word Reading		Para. Mean.		Vocabulary		Spelling		Word Stud. Skills	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach											
BR	6	13.65	1.13	10.69	1.11	14.52	.52	6.87	2.00	25.24	1.21
PV	8	14.06	1.97	10.36	2.71	14.80	1.76	6.93	2.46	28.14	3.30
Total	14	13.88	1.68	10.50	2.18	14.68	1.38	6.90	2.27	26.90	2.99
LE Approach											
LE	5	14.83	4.38	12.06	5.56	13.99	.53	6.22	1.87	25.40	1.88
LE-AV	7	13.03	2.15	9.77	3.04	14.70	1.50	5.62	2.56	25.19	2.95
Total	12	13.78	3.39	10.72	4.42	14.40	1.25	5.87	2.32	25.28	2.56
Pilot	4	17.37	1.12	12.61	1.46	14.57	1.69	9.42	.56	31.45	2.37
All Methods	30	14.31	2.74	10.87	3.29	14.55	1.38	6.82	2.42	26.86	3.37

Table 7.11

Multiple Regression Equations for Stanford Subtests Predicted by Pretests, Replication 1

Test	Constant +	X_1 +	X_2 +	X_3 +	X_4
S-D Pupil Inventory	11.222	.263	.252	.320	.000
Stanford Wd Rdng	3.204	.507	.284	.289	.530
Stanford Para. Mng	.739	.624	.000	.475	.506
Stanford Vocabulary	7.386	.330	.232	.357	.167
Stanford Spelling	- .807	.191	.000	.373	.603
Stanford Wd St. Sk.	12.973	.335	.335	.659	.746

Y = Constant + X_1 + X_2 + X_3 + X_4

X_1 = Met. Readiness Wd Meaning

X_2 = Met. Readiness Listening

X_3 = Met. Readiness Matching

X_4 = Met. Readiness Alphabet

Table 7.12

Adjusted Stanford Results for Replication 1
(Child as Unit)

Method and Approach	Word Reading		Paragraph Mean.		Vocabulary		Spelling		Word St. Skills		N
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	
SC Approach											
BR	12.68	3.59	10.33	3.71	14.27	2.20	7.61	3.18	23.95	4.86	139
PV	14.73	3.82	10.70	3.92	15.55	2.24	7.72	3.58	30.28	5.37	176
Total	13.83	3.86	10.54	3.83	14.99	2.31	7.67	3.40	27.49	6.03	315
LE Approach											
LE	14.26	3.73	12.04	3.86	13.26	2.18	5.07	3.44	23.26	5.07	123
LE-AV	13.25	3.98	10.38	3.98	15.80	2.54	5.68	3.46	25.70	5.37	148
Total	13.71	3.90	11.13	4.01	14.65	2.70	5.40	3.46	24.59	5.38	271
Pilot	20.13	4.84	13.88	4.81	14.38	2.90	11.16	4.25	34.89	6.62	93
All Methods	14.61	4.02	11.22	4.09	14.73	2.43	7.22	3.61	27.25	5.49	679

Table 7.13

Adjusted Stanford Results for Replication 1
(Class As Unit)

Method and Approach	N	Stanford Subtest									
		Word Reading		Par. Meaning		Vocabulary		Spelling		Wd. Study Sk.	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Skills-Centered											
BR	6	12.82	2.83	10.30	2.12	14.30	1.16	7.14	3.94	23.61	2.82
FV	8	14.82	3.03	10.79	4.57	15.64	2.90	7.71	3.69	30.46	5.38
Total	14	13.96	3.11	10.58	3.73	15.06	2.42	7.46	3.81	27.52	5.61
Language-Experience											
LE	5	14.82	7.85	12.69	10.30	13.24	1.10	5.26	3.64	23.39	3.56
LE-AV	7	13.26	3.52	10.28	5.16	15.80	2.28	5.75	4.63	25.43	4.74
Total	12	13.91	5.79	11.28	7.82	14.73	2.27	5.54	4.25	24.58	4.40
Pilot	4	20.02	2.17	13.76	2.86	14.28	3.06	11.13	1.18	34.71	4.25
All Methods	30	14.75	4.78	11.28	5.75	14.82	2.47	7.18	4.17	27.30	5.93

Table 7.14

Analysis of Variance: Comparison of Approaches on Stanford Paragraph Meaning Adjusted by Pretests Across All Schools, Replication 1

Source	df	SS	MS	F
Treatment	1	3.23	3.23	0.08
Within	24	929.09	38.71	
Total	25	932.32		

Table 7.15

Analysis of Variance: Comparison of Methods on Stanford Word Study Skills Adjusted by Pretests Across All Schools, Replication 1

Source	df	SS	MS	F
Treatment	4	481.88	120.47	5.27**
Within	25	571.24	22.85	
Total	29	1053.11		

**$P < .01$

Table 7.16

Grade Equivalents of Adjusted Means for the Five Methods, Replication 1 (Class is Unit)

Stanford Subtests	BR	PV	LE	LE-AV	Pilot
Word Reading	1.4	1.5	1.5	1.4	1.7
Paragraph Meaning	1.5	1.5	1.6	1.5	1.6
Vocabulary	1.4	1.5	1.4	1.5	1.4
Spelling	1.6	1.6	1.4	1.5	1.8
Word Study Skills	1.3	1.5	1.3	1.4	1.8

Table 7.17

Analysis of Variance: Comparison of CRAFT 1 and Replication 1 on Stanford Word Reading (Adjusted Scores)

Method	N Classes	Means		
		CRAFT 1	Replication 1	Total
BR	6	15.70	12.82	14.26
PV	8	15.10	14.82	14.96
LE	5	12.43	14.82	13.63
LE-AV	7	13.19	13.26	13.23
Pilot	4	17.33	20.02	18.68
Total	30	14.62	14.75	14.69

Source	SS	df	MS	F
Between Teachers	656.3373	29		
P/Method	146.7462	1	146.7462	7.5701*
Method	24.9678	3	8.3226	.4293
T (Method + Pilot)	484.6233	25	19.3849	
Within Teachers	244.6110	30		
Year	.2445	1	.2445	.0320
Year X P/Method	15.2104	1	15.2104	1.9951
Year X Method	38.5651	3	12.8550	1.6862
Year X T (Method + Pilot)	190.5910	25	7.6236	

* P<.05

Table 7.18

Analysis of Variance; Comparison of CRAFT 1 and Replication 1 on Stanford Paragraph Meaning (Adjusted Scores)

Method	N Classes	Means		
		CRAFT 1	Replication 1	Total
BR	6	14.240	10.302	12.271
PV	8	11.636	10.789	11.213
LE	5	10.154	12.688	11.421
LE-AV	7	9.803	10.284	10.044
Pilot	4	13.890	13.755	13.823
	30	11.783	11.286	11.543

Source	SS	df	MS	F
Between Teachers	812.3278	29		
P/Method	48.3366	1	48.3366	1.6530
Method	32.9570	3	10.9856	.3756
T (Method + Pilot)	731.0341	25	29.2413	
Within Teachers	473.0531	30		
Year	3.7051	1	3.7051	
Year X P/Method	.3019	1	.3019	.0185
Year X Method	62.2974	3	20.7658	1.2763
Year X T (Method + Pilot)	406.7482	25	16.2699	

Table 7.19

Analysis of Variance:Comparison of Craft 1 and
Replication 1 on Stanford Vocabulary
(Adjusted Score)

Method	N Classes	Means		
		Craft 1	Replication 1	Total
BR	6	15.57	14.31	14.93
PV	8	15.33	15.64	15.49
LE	5	14.60	13.24	13.92
LE-AV	7	15.09	15.80	15.45
Pilot	4	15.31	14.29	14.80
Total	30	15.20	14.83	15.01

Source	SS	df	MS	F
Between Teachers	129.1039	29		
P/Method	.4434	1	.4434	.1003
Method	18.1839	3	6.0613	1.3716
T (Method + Pilot)	110.4766	25	4.4190	
Within Teachers	131.8916	30		
Year	2.0277	1	2.0277	.4289
Year X P/Method	.9820	1	.9820	.2077
Year X Method	10.6977	3	3.5659	.7543
Year X T (Method + Pilot)	118.1842	25	4.7273	

Table 7.20

Analysis of Variance:Comparison of Craft 1 and Replication 1 on Stanford Spelling (Adjusted Score)

Method	N Classes	Means Craft 1	Replication 1	Total
BR	6	9.868	7.138	8.503
PV	8	7.451	7.708	7.579
LE	5	6.754	5.260	6.007
LE-AV	7	6.893	5.750	6.321
Pilot	4	12.018	11.130	11.574
Total	30	8.297	7.185	7.741

Source	SS	df	MS	F
Between Teachers	575.3751	29		
P/Method	135.5880	1	135.5880	7.8926**
Method	10.3072	3	3.4357	.1999
T (Method + Pilot)	429.4799	25	17.1791	
Within Teachers	222.7409	30		
Year	18.5370	1	18.5370	2.4336
Year X P/Method	.1160	1	.1160	.0152
Year X Method	13.6661	3	4.5553	.5980
Year X T (Method + Pilot)	190.4219	25	7.6168	

** P < .01

Table 7.21

Analysis of Variance:
Comparison of CRAFT 1 and Replication 1
Word Study Skills
(Adjusted Score)

Method	N Classes	Mean		
		CRAFT 1	Replication 1	Total
BR	6	31.49	23.61	27.55
PV	8	27.63	30.46	29.04
LE	5	24.93	23.39	24.16
LE-AV	7	26.20	25.43	25.81
Pilot	4	31.44	34.71	33.08
Total	30	28.13	27.30	27.72

Source	SS	df	MS	F
Between Teachers	982.8372	29		
P/Method	265.5345	1	265.5345	12.1292**
Method	169.9995	3	56.6665	2.5884
T (Method + Pilot)	547.3032	25	21.8921	
Within Teachers	516.4941	30		
Year	10.1183	1	10.1188	.9395
Year XP/Method	38.5813	1	38.5813	3.5824
Year X Method	198.5528	3	66.1842	6.1454*
Year X T (Method + Pilot)	269.2412	25	10.7696	

* P .05
** P .01

Table 7.22

Mean Grade Equivalents on the Adjusted Stanford Posttests for CRAFT 1 and Replication 1 Classes of the Four Pilot Teachers

Subtest	CRAFT 1 Classes 1964-1965	Replication 1 Classes Pilot: 1965-66
Word Reading	1.6	1.7
Paragraph Meaning	1.6	1.6
Vocabulary	1.5	1.4
Spelling	1.9	1.8
Word Study Skills	1.6	1.8

Table 7.23

Results of San Diego Pupil Attitude Inventory in Replication 1 (Child as Unit)

Method and Approach	No. of Children	Mean	S.D.
SC Approach			
BR	156	18.35	3.87
PV	190	18.97	3.59
Total	346	18.69	3.73
LE Approach			
LE	132	19.09	3.97
LE-AV	140	18.94	3.45
Total	272	19.01	3.72
All Methods	618	18.83	3.73

Table 7.24

Subsample Oral Reading Raw Score Results, Replication 1
(Class as Unit)

Method and Approach	N	Gilmore Accuracy		Gilmore Rate		Fry		Gates	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach									
BR	6	1.78	.32	37.54	3.93	0.83	0.64	8.08	1.31
PV	8	1.72	.54	33.53	7.66	0.43	0.57	6.97	3.33
Total	14	1.75	.46	35.25	6.64	0.60	0.63	7.44	2.72
LE Approach									
LE	5	1.42	.26	21.50	11.94	0.10	0.12	5.25	2.57
LE-AV	7	1.47	.36	28.11	12.48	0.86	0.77	4.86	1.99
Total	12	1.45	.32	25.36	12.68	0.54	0.70	5.02	2.26
Pilot	4	2.16	.69	26.94	9.46	12.75	7.09	11.56	5.80
All Methods	30	1.68	.51	30.19	10.93	2.20	4.92	7.02	3.80

Table 7.25

Subsample Oral Reading Results Adjusted by Alphabet Pretest, Replication 1
(Class as Unit)

Method and Approach	N	Gilmore Accuracy		Gilmore Rate		Fry		Gates	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach									
BR	6	1.81	.87	43.45	12.43	- 0.76	1.58	8.70	3.96
PV	8	1.78	.88	37.39	14.16	- 1.23	.68	7.12	5.34
Total	14	1.79	.87	39.99	13.78	- 1.03	1.18	7.80	4.86
LE Approach									
LE	5	1.15	.55	12.61	24.38	- 2.01	0.19	3.43	5.27
LE-AV	7	1.29	.61	26.66	21.94	- 0.34	1.88	2.93	2.66
Total	12	1.23	.59	20.80	24.01	- 1.04	1.66	3.14	3.97
Pilot	4	2.58	1.32	22.64	18.11	23.13	19.92	15.80	11.19
All Methods	30	1.67	.96	30.00	21.23	2.19	9.75	7.00	7.11

Table 7.26

Writing Sample Results for the Subsample of Replication 1 (Class as Unit)

Method and Approach	N	Number Running Words		Number Words Spelled Correctly		Mechanics Ratio	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach							
BR	6	18.65	5.54	17.13	5.56	56.40	12.50
PV	8	15.31	5.21	14.45	5.17	56.45	16.59
Total	14	16.74	5.60	15.60	5.50	56.43	14.98
LE Approach							
LE	5	11.68	3.34	10.82	3.18	59.68	18.51
LE-AV	7	13.80	4.29	12.04	3.77	55.76	20.98
Total	12	12.92	4.06	11.53	3.59	57.39	20.08
Pilot	4	27.30	14.54	23.28	12.20	56.78	18.97
All Methods	30	16.62	8.37	15.00	7.30	56.86	17.73

Table 7.27

Intercorrelations of 40 Variables, Replication 1

(Class as Unit)

VARIABLE	1	2	3	4	5	6	7	8	9	10
1 Child's Chronological Age	1.000	0.029	0.205	0.422*	0.299	0.144	-0.002	0.005	-0.108	0.015
2 Met. Readiness Word Mng	0.029	1.000	0.534**	0.063	0.148	-0.051	-0.027	0.054	-0.054	-0.164
3 Met. Readiness Listening	0.205	0.534**	1.000	0.407*	0.331	0.060	0.281	0.289	0.075	0.059
4 Met. Readiness Matching	0.422*	0.063	0.407*	1.000	0.708**	0.454**	0.160	0.097	-0.050	0.062
5 Met. Readiness Alphabet	0.299	0.148	0.331	0.708**	1.000	0.544**	-0.022	-0.117	-0.315	-0.033
6 Pre Gr. 1 School Exp.	0.144	-0.051	0.060	0.454**	0.544**	1.000	0.178	0.103	-0.062	0.133
7 Age of Teacher	-0.002	-0.027	0.281	0.160	-0.022	0.178	1.000	0.814**	0.633**	0.437*
8 Total No. Yrs Teach. Exp.	0.005	0.054	0.289	0.097	-0.117	0.103	0.814**	1.000	0.795**	0.204
9 No. Yrs Gr. 1 Teach. Exp.	-0.108	-0.054	0.075	-0.050	-0.315	-0.062	0.633**	0.795**	1.000	0.004
10 Median Yrs Ed. in Community	0.015	-0.164	0.059	0.062	-0.033	0.133	0.437*	0.204	0.004	1.000
11 Median Income in Community	-0.022	0.150	0.156	-0.220	-0.137	-0.041	0.315	0.098	-0.002	0.729**
12 CRAFT Wd Recognition	0.215	0.214	0.408*	0.484**	0.484**	0.459**	-0.200	-0.209	-0.310	0.003
13 Class Size as of 5/1/66	-0.034	0.075	0.095	0.331	0.399*	0.364*	0.259	0.052	-0.147	0.369*
14 Pupil Absence	-0.343	0.182	-0.029	-0.014	0.138	-0.317	-0.312	-0.302	-0.283	-0.210
15 Teacher Absence	0.084	-0.036	-0.071	-0.097	0.198	-0.056	-0.266	-0.312	-0.167	-0.122
16 Teacher Competence	0.374*	-0.056	0.227	0.417*	0.228	0.123	0.209	0.317	0.093	0.242
17 WS: Mechanics Ratio	0.216	-0.004	0.088	-0.002	0.111	0.021	-0.147	-0.010	-0.279	-0.209
18 WS: Words Spelled Correctly	0.237	-0.099	-0.010	0.300	0.167	0.157	-0.004	-0.147	-0.253	0.446*
19 WS: Running Words	0.230	-0.096	-0.028	0.303	0.165	0.178	-0.008	-0.171	-0.254	0.451**
20 Teacher Post S-D: Basic	-0.133	0.324	0.292	0.005	-0.033	-0.233	0.040	0.098	0.110	0.176

Table 7.27 cont.

VARIABLE	1	2	3	4	5	6	7	8	9	10
21 Teacher Post S-D: Indiv.	0.155	-0.225	-0.021	0.243	0.261	0.324	0.334	0.424*	0.335	0.105
22 Teacher Post S-D: LE	0.264	-0.207	-0.015	0.128	0.170	0.285	0.179	0.242	0.176	-0.010
23 Pupil San Diego	0.149	0.340	0.409*	0.065	0.177	0.160	0.196	0.210	-0.057	-0.036
24 Stanford Wd Rdg	0.441*	0.289	0.317	0.300	0.104	-0.041	0.085	0.150	-0.078	0.153
25 Stanford Para. Mng	0.251	0.458**	0.366*	0.215	0.128	0.123	0.000	0.216	0.098	0.053
26 Stanford Vocabulary	0.397*	-0.077	0.234	0.276	-0.032	0.057	-0.077	0.042	0.022	-0.213
27 Stanford Spelling	0.318	0.030	0.284	0.549**	0.293	0.281	0.283	0.270	0.148	0.302
28 Stanford Wd St. Sk.	0.417*	-0.125	0.134	0.451**	0.100	0.179	0.248	0.309	0.107	0.364*
29 Gilmore Accuracy	0.239	0.054	0.209	0.296	0.182	0.131	0.336	0.255	0.051	0.548**
30 Gilmore Rate	0.044	0.270	0.231	-0.181	-0.155	-0.131	0.089	0.098	-0.033	0.169
31 Fry List	0.240	-0.154	-0.063	0.339	0.239	0.163	0.143	0.152	-0.096	0.388*
32 Gates Wd Pronunciation	0.312	0.117	0.277	0.336	0.284	0.052	0.283	0.245	-0.100	0.491**
33 Teacher Pre S-D: Basic	-0.053	0.310	0.221	-0.001	0.085	-0.255	-0.097	-0.123	-0.166	0.247
34 Teacher Pre S-D: Indiv.	0.048	-0.322	-0.115	0.032	0.171	0.288	0.144	0.222	0.142	-0.039
35 Teacher Pre S-D: LE	0.210	-0.295	-0.029	0.102	0.143	0.264	0.245	0.263	0.275	-0.106
36 Logs: LE vs. SC App.	0.003	-0.203	-0.114	-0.039	-0.014	0.255	0.129	0.205	0.156	-0.119
37 Mean Time All Activities	0.076	0.178	0.004	-0.102	-0.053	0.042	0.149	0.157	0.104	-0.063
38 Mean Time Reading Activ.	0.015	0.390*	0.181	0.157	0.166	-0.104	-0.124	-0.195	-0.202	0.137
39 Mean Time Support. Activ.	0.056	-0.186	-0.161	-0.235	-0.192	0.130	0.242	0.310	0.268	-0.184
40 CRAFT Teacher Attitude	0.103	0.256	0.218	0.011	-0.165	-0.006	0.238	0.335	0.204	-0.022

Table 7.27 cont.

VARIABLE	11	12	13	14	15	16	17	18	19	20
1 Child's Chronological Age	-0.022	0.215	-0.034	-0.343	0.084	0.374*	0.216	0.237	0.230	-0.133
2 Met. Readiness Word Mng	0.150	0.214	0.075	0.182	-0.036	-0.056	-0.004	-0.099	-0.096	0.324
3 Met. Readiness Listening	0.156	0.408**	0.095	-0.029	-0.071	0.227	0.088	-0.010	-0.028	0.292
4 Met. Readiness Matching	-0.220	0.484**	0.331	-0.014	-0.097	0.417*	-0.002	0.300	0.303	0.005
5 Met. Readiness Alphabet	-0.137	0.484**	0.399*	0.138	0.198	0.228	0.111	0.167	0.165	-0.033
6 Pre Gr. 1 School Exp.	-0.041	0.459**	0.364*	-0.317	-0.056	0.123	0.021	0.157	0.178	-0.233
7 Age of Teacher	0.315	-0.200	0.259	-0.312	-0.266	0.209	-0.147	-0.004	-0.008	0.040
8 Total No. Yrs Teach. Exp.	0.098	-0.209	0.052	-0.302	-0.312	0.317	-0.010	-0.147	-0.171	0.098
9 No. Yrs Gr. 1 Teach. Exp.	-0.002	-0.310	-0.147	-0.283	-0.167	0.093	-0.279	-0.253	-0.254	0.110
10 Median Yrs Ed. in Community	0.729**	0.003	0.369*	-0.213	-0.122	0.242	-0.209	0.446*	0.451**	0.176
11 Median Income in Community	1.000	-0.155	0.170	-0.091	-0.039	0.091	-0.122	0.279	0.243	0.411*
12 CRAFT Wd Recognition	-0.155	1.000	0.234	-0.050	0.124	0.004	-0.120	0.027	0.068	-0.150
13 Class Size as of 5/1/66	0.170	0.234	1.000	-0.022	-0.106	-0.055	-0.224	0.093	0.111	-0.134
14 Pupil Absence	-0.091	-0.050	-0.022	1.000	-0.004	-0.076	-0.025	-0.386*	-0.400*	0.192
15 Teacher Absence	-0.039	0.124	-0.106	-0.004	1.000	-0.350*	-0.126	-0.098	-0.078	-0.101
16 Teacher Competence	0.091	0.004	-0.055	-0.076	-0.350*	1.000	0.093	0.393*	0.404*	0.095
17 WS: Mechanics Ratio	-0.122	-0.120	-0.224	-0.025	-0.126	0.093	1.000	0.177	0.073	-0.114
18 WS: Words Spelled Correctly	0.279	0.027	0.093	-0.386*	-0.098	0.393*	0.177	1.000	0.987**	0.247
19 WS: Running Words	0.243	0.068	0.111	-0.400*	-0.078	0.404*	0.073	0.987**	1.000	0.192
20 Teacher Post S-D: Basic	0.411*	-0.150	-0.134	0.192	-0.101	0.095	-0.114	0.247	0.192	1.000

Table 7.27 cont.

VARIABLE	11	12	13	14	15	16	17	18	19	20
21 Teacher Post S-D: Indiv.	-0.213	0.075	0.091	-0.073	-0.145	0.316	0.135	-0.151	-0.146	-0.257
22 Teacher Post S-D: LE	-0.304	0.203	-0.031	-0.378*	0.047	0.192	0.084	-0.006	0.042	-0.582 **
23 Pupil San Diego	-0.091	0.354*	-0.177	0.064	-0.168	0.175	0.236	-0.097	-0.101	-0.024
24 Stanford Wd Rdg	0.048	0.219	-0.089	-0.121	-0.256	0.403*	0.294	0.425*	0.411*	-0.016
25 Stanford Para. Mng	0.066	0.301	-0.252	-0.090	-0.167	0.307	0.254	0.272	0.245	0.166
26 Stanford Vocabulary	-0.048	0.147	-0.427*	-0.093	-0.011	0.253	0.311	0.081	0.037	0.033
27 Stanford Spelling	0.065	0.131	0.073	-0.171	-0.146	0.309	0.266	0.470 **	0.425 *	0.132
28 Stanford Wd St. Sk.	0.078	0.168	-0.209	-0.255	-0.190	0.488 **	0.180	0.454**	0.427*	0.136
29 Gilmore Accuracy	0.311	-0.045	-0.001	-0.176	-0.125	0.323	0.193	0.598 **	0.554 **	0.376 *
30 Gilmore Rate	0.417*	-0.106	-0.169	-0.115	-0.159	-0.059	0.256	0.317	0.256	0.581**
31 Fry List	-0.117	-0.048	0.116	-0.200	-0.041	0.387*	0.036	0.554**	0.590 **	-0.048
32 Gates Wd Pronunciation	0.266	-0.068	0.054	-0.088	-0.094	0.365 *	0.301	0.577**	0.527**	0.389*
33 Teacher Pre S-D: Basic	0.469**	-0.100	-0.065	0.270	0.037	0.059	-0.028	0.326	0.267	0.881**
34 Teacher Pre S-D: Indiv.	-0.251	-0.042	0.035	-0.088	-0.104	0.196	0.394 *	-0.024	-0.033	-0.382*
35 Teacher Pre S-D: LE	-0.335	0.115	-0.061	-0.293	0.054	0.219	0.109	-0.153	-0.098	-0.689**
36 Logs: LE vs. SC App.	-0.397*	0.135	-0.013	-0.436 *	0.130	-0.079	0.053	-0.066	-0.009	-0.706 **
37 Mean Time All Activities	0.128	-0.230	0.032	-0.265	0.086	0.017	0.061	-0.161	-0.163	-0.252
38 Mean Time Reading Activ.	0.419*	-0.070	0.108	0.287	0.036	0.009	-0.060	0.062	0.024	0.445*
39 Mean Time Support. Activ.	-0.259	-0.147	-0.063	-0.492**	0.049	0.008	0.106	-0.205	-0.172	-0.632**
40 CRAFT Teacher Attitude	0.029	-0.106	-0.093	-0.036	-0.542**	0.327	-0.025	-0.253	-0.227	0.005

Table 7.27 cont.

VARIABLE	21	22	23	24	25	26	27	28	29	30
1 Child's Chronological Age	0.155	0.264	0.149	0.441*	0.251	0.397*	0.318	0.417*	0.239	0.044
2 Met. Readiness Word Mng	-0.225	-0.207	0.340	0.289	0.458**	-0.077	0.030	-0.125	0.054	0.270
3 Met. Readiness Listening	-0.021	-0.015	0.409*	0.317	0.366*	0.234	0.284	0.134	0.209	0.231
4 Met. Readiness Matching	0.243	0.128	0.065	0.300	0.215	0.276	0.549**	0.451**	0.296	-0.181
5 Met. Readiness Alphabet	0.261	0.170	0.177	0.104	0.128	-0.032	0.293	0.100	0.182	-0.155
6 Pre Gr. 1 School Exp.	0.324	0.285	0.160	-0.041	0.123	0.057	0.281	0.179	0.131	-0.131
7 Age of Teacher	0.334	0.179	0.196	0.085	0.000	-0.077	0.283	0.248	0.336	0.089
8 Total No. Yrs Teach. Exp.	0.424*	0.242	0.210	0.150	0.216	0.042	0.270	0.309	0.255	0.098
9 No. Yrs Gr. 1 Teach. Exp.	0.335	0.176	-0.057	-0.078	0.098	0.022	0.148	0.107	0.051	-0.033
10 Median Yrs Ed. in Community	0.105	-0.010	-0.036	0.153	0.053	-0.213	0.302	0.364*	0.548**	0.169
11 Median Income in Community	-0.213	-0.304	-0.091	0.048	0.066	-0.048	0.065	0.078	0.311	0.417*
12 CRAFT Wd Recognition	0.075	0.203	0.354*	0.219	0.301	0.147	0.131	0.168	-0.045	-0.106
13 Class Size as of 5/1/66	0.091	-0.031	-0.177	-0.089	-0.252	-0.427*	0.073	-0.209	-0.001	-0.169
14 Pupil Absence	-0.073	-0.378*	0.064	-0.121	-0.090	-0.093	-0.171	-0.255	-0.176	-0.115
15 Teacher Absence	-0.145	0.047	-0.168	-0.256	-0.167	-0.011	-0.146	-0.190	-0.125	-0.159
16 Teacher Competence	0.316	0.192	0.175	0.403*	0.307	0.253	0.309	0.488**	0.323	-0.059
17 WS: Mechanics Ratio	0.135	0.084	0.236	0.294	0.254	0.311	0.266	0.180	0.193	0.256
18 WS: Words Spelled Correctly	-0.151	-0.006	-0.097	0.425*	0.272	0.081	0.470**	0.454**	0.598**	0.317
19 WS: Running Words	-0.146	0.042	-0.101	0.411*	0.245	0.037	0.425*	0.427*	0.554**	0.256
20 Teacher Post S-D: Basic	-0.257	-0.582**	-0.024	-0.016	0.166	0.033	0.132	0.136	0.376*	0.581**

Table 7.27 cont.

VARIABLE	21	22	23	24	25	26	27	28	29	30
21 Teacher Post S-D: Indiv.	1.000	0.636**	0.080	-0.069	0.041	-0.179	0.139	0.090	0.063	-0.407*
22 Teacher Post S-D: LE	0.636**	1.000	0.097	0.174	0.132	-0.092	0.049	0.047	-0.040	-0.451**
23 Pupil San Diego	0.080	0.097	1.000	0.525**	0.594**	0.057	0.267	0.395*	0.321	0.237
24 Stanford Wd Rdg	-0.069	0.174	0.525**	1.000	0.807**	0.298	0.638**	0.679**	0.492**	0.293
25 Stanford Para. Mng	0.041	0.132	0.594**	0.807**	1.000	0.247	0.618**	0.581**	0.442*	0.275
26 Stanford Vocabulary	-0.179	-0.092	0.057	0.298	0.247	1.000	0.324	0.471**	0.114	0.205
27 Stanford Spelling	0.139	0.049	0.267	0.638**	0.618**	0.324	1.000	0.717**	0.705**	0.276
28 Stanford Wd St. Sk.	0.090	0.047	0.395*	0.679**	0.581**	0.471**	0.717**	1.000	0.687**	0.279
29 Gilmore Accuracy	0.063	-0.040	0.321	0.492**	0.442*	0.114	0.705**	0.687**	1.000	0.542**
30 Gilmore Rate	-0.407*	-0.451**	0.237	0.293	0.275	0.205	0.276	0.279	0.542**	1.000
31 Fry List	0.124	0.307	0.141	0.421*	0.221	-0.181	0.395*	0.511**	0.609**	0.039
32 Gates Wd Pronunciation	0.029	-0.016	0.326	0.512**	0.397*	0.049	0.596**	0.613**	0.912**	0.496**
33 Teacher Pre S-D: Basic	-0.335	-0.624**	0.093	0.076	0.205	-0.073	0.108	0.162	0.428*	0.575**
34 Teacher Pre S-D: Indiv.	0.739**	0.552**	0.056	-0.123	-0.046	-0.117	-0.048	-0.091	-0.010	-0.312
35 Teacher Pre S-D: LE	0.632**	0.858**	0.043	0.003	-0.049	0.027	0.012	-0.060	-0.141	-0.456**
36 Logs: LE vs. SC App.	0.355*	0.855**	0.006	0.042	-0.010	-0.154	-0.126	-0.106	-0.206	-0.442*
37 Mean Time All Activities	0.040	0.097	-0.085	-0.160	-0.067	-0.184	-0.310	-0.207	-0.370*	-0.376*
38 Mean Time Reading Activ.	-0.351*	-0.679**	-0.059	0.019	0.127	0.013	0.069	0.077	0.050	0.163
39 Mean Time Support. Activ.	0.345	0.692**	-0.025	-0.165	-0.180	-0.182	-0.353*	-0.262	-0.388*	-0.492**
40 CRAFT Teacher Attitude	0.279	0.251	0.200	0.086	0.128	-0.128	-0.211	-0.032	-0.198	-0.156

Table 7.27 cont.

VARIABLE	31	32	33	34	35	36	37	38	39	40
1 Child's Chronological Age	0.240	0.312	-0.053	0.048	0.210	0.003	0.076	0.015	0.056	0.103
2 Met. Readiness Word Mng	-0.154	0.117	0.310	-0.322	-0.295	-0.203	0.178	0.390*	-0.186	0.256
3 Met. Readiness Listening	-0.063	0.277	0.221	-0.115	-0.029	-0.114	0.004	0.181	-0.161	0.218
4 Met. Readiness Matching	0.339	0.336	-0.001	0.032	0.102	-0.039	-0.102	0.157	-0.235	0.011
5 Met. Readiness Alphabet	0.239	0.284	0.085	0.171	0.143	-0.014	-0.053	0.166	-0.192	-0.165
6 Pre Gr. 1 School Exp.	0.163	0.052	-0.255	0.288	0.264	0.255	0.042	-0.104	0.130	-0.006
7 Age of Teacher	0.143	0.283	-0.097	0.144	0.245	0.129	0.149	-0.124	0.242	-0.238
8 Total No. Yrs Teach. Exp.	0.152	0.245	-0.123	0.222	0.263	0.205	0.157	-0.195	0.310	0.335
9 No. Yrs Gr. 1 Teach. Exp.	-0.096	-0.100	-0.166	0.142	0.275	0.156	0.104	-0.202	0.268	0.204
10 Median Yrs Ed. in Community	0.388*	0.491**	0.247	-0.039	-0.106	-0.119	-0.063	0.137	-0.184	-0.022
11 Median Income in Community	-0.117	0.266	0.469**	-0.251	-0.335	-0.397*	0.128	0.419*	-0.259	0.029
12 CRAFT Wd Recognition	-0.048	-0.068	-0.100	-0.042	0.115	0.135	-0.230	-0.070	-0.147	-0.106
13 Class Size as of 5/1/66	0.116	0.054	-0.065	0.035	-0.061	-0.013	0.032	0.108	-0.063	-0.093
14 Pupil Absence	-0.200	-0.088	0.270	-0.088	-0.293	-0.436*	-0.265	0.287	-0.492**	-0.036
15 Teacher Absence	-0.041	-0.094	0.037	-0.104	0.054	0.130	0.086	0.036	0.049	-0.542**
16 Teacher Competence	0.387*	0.365*	0.059	0.196	0.219	-0.079	0.017	0.009	0.008	0.327
17 WS: Mechanics Ratio	0.036	0.301	-0.028	0.394*	0.109	0.053	0.061	-0.060	0.106	-0.025
18 WS: Words Spelled Correctly	0.554**	0.577**	0.326	-0.024	-0.153	-0.066	-0.161	0.062	-0.205	-0.253
19 WS: Running Words	0.590**	0.527**	0.267	-0.033	-0.098	-0.009	-0.163	0.024	-0.172	-0.227
20 Teacher Post S-D: Basic	-0.048	0.389*	0.881**	-0.382*	-0.689**	-0.706**	-0.252	0.445*	-0.632**	0.005

Table 7.27 cont.

VARIABLE	31	32	33	34	35	36	37	38	39	40
21 Teacher Post S-D: Indiv.	0.124	0.029	-0.335	0.739**	0.632**	0.355*	0.040	-0.351*	0.345	0.279
22 Teacher Post S-D: LE	0.307	-0.016	-0.624**	0.552**	0.858**	0.855**	0.097	-0.679**	0.692**	0.251
23 Pupil San Diego	0.141	0.326	0.093	0.056	0.043	0.006	-0.085	-0.059	-0.025	0.200
24 Stanford Wd Rdg	0.421*	0.512**	0.076	-0.123	0.003	0.042	-0.160	0.019	-0.165	0.086
25 Stanford Para. Mng	0.221	0.397*	0.205	-0.046	-0.049	-0.010	-0.067	0.127	-0.180	0.128
26 Stanford Vocabulary	-0.181	0.049	-0.073	-0.117	0.027	-0.154	-0.184	0.013	-0.182	-0.128
27 Stanford Spelling	0.395*	0.596**	0.108	-0.048	0.012	-0.126	-0.310	0.069	-0.353*	-0.211
28 Stanford Wd St. Sk.	0.511**	0.613**	0.162	-0.091	-0.060	-0.106	-0.207	0.077	-0.262	-0.032
29 Gilmore Accuracy	0.609**	0.912**	0.428*	-0.010	-0.141	-0.206	-0.370*	0.050	-0.388*	-0.198
30 Gilmore Rate	0.039	0.496**	0.575**	-0.312	-0.456**	-0.442*	-0.376*	0.163	-0.492**	-0.156
31 Fry List	1.000	0.712**	0.067	0.150	0.119	0.287	-0.124	-0.161	0.031	-0.010
32 Gates Wd Pronunciation	0.712**	1.000	0.488**	-0.014	-0.189	-0.172	-0.256	0.081	-0.311	-0.059
33 Teacher Pre S-D: Basic	0.067	0.488*	1.000	-0.322	-0.762**	-0.745**	-0.144	0.620	-0.686**	-0.065
34 Teacher Pre S-D: Indiv.	0.150	-0.014	-0.322	1.000	0.640**	0.446*	0.145	-0.349*	0.443*	0.114
35 Teacher Pre S-D: LE	0.119	-0.189	-0.762**	0.640**	1.000	0.755**	0.102	-0.644**	0.667**	0.128
36 Logs: LE vs. SC App.	0.287	-0.172	-0.745**	0.446*	0.755**	1.000	0.213	-0.695**	0.814**	0.114
37 Mean Time All Activities	-0.124	-0.256	-0.144	0.145	0.102	0.213	1.000	0.386	0.570**	0.424*
38 Mean Time Reading Activ.	-0.161	0.081	0.620**	-0.349*	-0.644**	-0.695**	0.386*	1.000	-0.538**	0.035
39 Mean Time Support. Activ.	0.031	-0.311	-0.686**	0.443*	0.667**	0.814**	0.570**	-0.538**	1.000	0.352*
40 CRAFT Teacher Attitude	-0.010	-0.059	-0.065	0.114	0.128	0.114	0.424*	0.035	0.352*	1.000

*p <.05
**p <.01

Table 7.28

Reading, Supportive, and Total Time for Replication 1 Teachers

Method and Approach	Reading Time		Supportive Time		Total Time	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach						
BR	105.35	24.55	62.18	20.40	167.53	29.40
PV	86.89	20.64	70.58	24.82	157.47	31.03
Total	95.83	24.43	66.51	23.17	162.34	30.67
LE Approach						
LE	87.10	16.85	92.38	22.40	179.48	22.58
LE-AV	66.84	21.49	101.18	26.40	168.03	25.62
Total	75.88	22.00	97.25	25.08	173.14	24.97
All Methods	87.71	25.44	79.02	28.33	166.74	28.98

Table 7.29

Intercorrelation Matrix of Adjusted Stanford Class Means and Log Variables, Replication 1

VARIABLE	1	2	3	4	5	6	7	8
1 Stanford Wd Rdg	1.000	0.823**	0.584**	0.115	-0.198	-0.110	0.044	-0.225
2 Stanford Para. Mng	0.823**	1.000	0.590**	0.184	-0.172	-0.012	0.034	-0.127
3 Stanford Wd St. Sk.	0.584**	0.590**	1.000	0.191	-0.355	-0.213	0.255	-0.408*
4 Logs: Reading Activities	0.115	0.184	0.191	1.000	-0.563**	0.353	0.722**	-0.060
5 Logs: Supportive Activ.	-0.198	-0.172	-0.355	-0.563**	1.000	0.574**	-0.790**	0.385
6 Logs: All Activities	-0.110	-0.012	-0.213	0.353	0.574**	1.000	-0.179	0.377
7 Logs: Basal Reader	0.044	0.034	0.255	0.722**	-0.790**	-0.179	1.000	-0.465*
8 Logs: Experience Chart	-0.225	-0.127	-0.408*	-0.060	0.385	0.377	-0.465*	1.000
9 Logs: Individualized Rdg	0.117	0.073	-0.071	-0.107	0.511**	0.473*	-0.641**	0.417*
10 Logs: Sight Words	0.064	0.080	-0.151	0.402*	0.116	0.530**	0.014	0.048
11 Logs: Phonic Activity	0.009	0.028	0.418*	0.460*	-0.525**	-0.139	0.470*	-0.292
12 Logs: Other Rdg Activ.	0.171	0.364	-0.087	-0.014	0.298	0.323	-0.322	0.041
13 Logs: Listening to Stories	-0.320	-0.315	-0.288	-0.425*	0.509**	0.155	-0.497*	0.362
14 Logs: Listening to Poetry	-0.182	-0.137	-0.211	-0.021	0.315	0.336	-0.332	0.243
15 Logs: Discussion	0.026	0.019	0.097	-0.374	0.515**	0.212	-0.545**	0.172
16 Logs: Writing	-0.095	-0.065	-0.305	0.125	0.211	0.363	-0.084	0.302
17 Logs: Audio-Visual Activ.	-0.090	-0.084	-0.110	-0.568**	0.640**	0.162	-0.652**	0.111
18 Logs: AV with Discussion	-0.095	-0.166	-0.204	-0.561**	0.770**	0.316	-0.555**	0.257
19 Logs: Dramatization	-0.068	0.059	0.047	-0.541**	0.640**	0.189	-0.626**	0.121
20 Logs: Art Work with Rdg	-0.323	-0.299	-0.588**	-0.138	0.643**	0.592**	-0.426*	0.550**
21 Logs: Other Language Arts	0.065	0.094	-0.096	-0.105	0.365	0.309	-0.126	-0.132
22 Logs: Social Studies	-0.089	-0.192	0.210	0.250	-0.364	-0.165	0.404*	-0.400*
23 Logs: Science	-0.002	-0.001	0.358	0.366	-0.522**	-0.228	0.509**	-0.320

Table 7.29 cont.

VARIABLE	9	10	11	12	13	14	15	16
1 Stanford Wd Rdg	0.117	0.064	0.009	0.171	-0.320	-0.182	0.026	-0.095
2 Stanford Para. Mng	0.073	0.080	0.028	0.364	-0.315	-0.137	0.019	-0.065
3 Stanford Wd St. Sk.	-0.071	-0.151	0.418*	-0.087	-0.288	-0.211	0.097	-0.305
4 Logs: Reading Activities	-0.107	0.402*	0.460*	-0.014	-0.425*	-0.021	-0.374	0.125
5 Logs: Supportive Activ.	0.511**	0.116	-0.525**	0.298	0.509**	0.315	0.515**	0.211
6 Logs: All Activities	0.473*	0.530**	-0.139	0.323	0.155	0.336	0.212	0.363
7 Logs: Basal Reader	-0.641**	0.014	0.470 *	-0.322	-0.497 *	-0.332	-0.545 **	-0.084
8 Logs: Experience Chart	0.417*	0.048	-0.292	0.041	0.362	0.243	0.172	0.302
9 Logs: Individualized Rdg	1.000	0.171	-0.321	0.098	0.253*	0.488*	0.658 **	0.072
10 Logs: Sight Words	0.171	1.000	-0.117	0.251	0.207	-0.081	-0.275	0.460 *
11 Logs: Phonic Activity	-0.321	-0.117	1.000	-0.295	-0.265	-0.112	-0.340	-0.222
12 Logs: Other Rdg Activ.	0.098	0.251	-0.295	1.000	-0.185	0.248	0.072	0.142
13 Logs: Listening to Stories	0.253	0.207	-0.265	-0.185	1.000	-0.076	0.138	0.118
14 Logs: Listening to Poetry	0.488*	-0.081	-0.112	0.248	-0.076	1.000	0.394	-0.141
15 Logs: Discussion	0.658**	-0.275	-0.340	0.072	0.138	0.394	1.000	-0.072
16 Logs: Writing	0.072	0.460*	-0.222	0.142	0.118	-0.141	-0.072	1.000
17 Logs: Audio-Visual Activ.	0.361	0.074	-0.421*	0.242	0.297	0.193	0.346	-0.072
18 Logs: AV with Discussion	0.366	-0.182	-0.475*	-0.009	0.256	0.362	0.460*	0.000
19 Logs: Dramatization	0.166	0.111	-0.246	0.359	0.426*	0.077	0.108	0.014
20 Logs: Art Work with Rdg	0.400*	-0.054	-0.317	0.233	0.260	0.324	0.285	0.254
21 Logs: Other Language Arts	-0.128	0.309	-0.046	0.301	0.099	-0.177	-0.146	-0.025
22 Logs: Social Studies	-0.231	-0.051	0.456*	-0.294	-0.102	-0.348	-0.297**	0.201
23 Logs: Science	-0.326	0.027	0.499*	-0.331	-0.097	-0.241	-0.492	0.047

Table 7.29 cont.

VARIABLE	17	18	19	20	21	22	23
1 Stanford Wd Rdg	-0.090	-0.095	-0.068	-0.323	0.065	-0.089	-0.002
2 Stanford Para. Mng	-0.084	-0.166	0.059	-0.299	0.094	-0.192	-0.001
3 Stanford Wd St. Sk.	-0.110	-0.204	0.047	-0.588**	-0.096	0.210	0.358
4 Logs: Reading Activities	-0.568**	-0.561**	-0.541**	-0.138	-0.105	0.250	0.366
5 Logs: Supportive Activ.	0.640**	0.770**	0.640**	0.643**	0.365	-0.364	-0.522**
6 Logs: All Activities	0.162	0.316	0.189	0.592**	0.309	-0.165	-0.228
7 Logs: Basal Reader	-0.652**	-0.555**	-0.626**	-0.426**	-0.126	0.404*	0.509**
8 Logs: Experience Chart	0.111	0.257	0.121	0.550**	-0.132	-0.400*	-0.320
9 Logs: Individualized Rdg	0.361	0.366	0.166	0.400*	-0.128	-0.231	-0.326
10 Logs: Sight Words	0.074	-0.182	0.111	-0.054	0.309	-0.051	0.027
11 Logs: Phonic Activity	-0.421*	-0.475*	-0.246	-0.317	-0.046	0.456*	0.499
12 Logs: Other Rdg Activ.	0.242	-0.009	0.359	0.233	0.301	-0.294	-0.331
13 Logs: Listening to Stories	0.297	0.256	0.426*	0.260	0.099	-0.102	-0.097
14 Logs: Listening to Poetry	0.193	0.362	0.077	0.324	-0.177	-0.348	-0.241
15 Logs: Discussion	0.346	0.460*	0.108	0.285	-0.146	-0.297	-0.492*
16 Logs: Writing	-0.072	0.000	0.014	0.254	-0.025	0.201	0.047
17 Logs: Audio-Visual Activ.	1.000	0.504*	0.429*	0.233	0.088	-0.256	-0.306
18 Logs: AV with Discussion	0.504*	1.000	0.442*	0.545**	0.007	-0.285	-0.282
19 Logs: Dramatization	0.429*	0.442*	1.000	0.131	0.416*	-0.201	-0.110
20 Logs: Art Work with Rdg	0.233	0.545**	0.131	1.000	-0.056	-0.126	-0.311
21 Logs: Other Language Arts	0.088	0.007	0.416*	-0.056	1.000	-0.268	-0.420*
22 Logs: Social Studies	-0.256	-0.285	-0.201	-0.126	-0.268*	1.000	0.780**
23 Logs: Science	-0.306	-0.282	-0.110	-0.311	-0.420**	0.780**	1.000

*P .05
**P .01

Table 7.30

Results of the San Diego Teacher Inventory at the End of Replication 2

Method and Approach	N	a) Basic				b) Individualized				c) Language Experience			
				ab				bc				ac	
		Mean	S.D.	r	t	Mean	S.D.	r	t	Mean	S.D.	r	t
SC Approach													
BR	6	49.33	4.19	.140	3.818*	36.50	7.70	.800	4.358*	28.17	6.94	.032	6.488**
PV	8	44.62	3.28	.168	2.713*	38.25	5.26	.527	5.479**	29.50	3.47	.017	9.105**
Total	14	46.64	4.38	-.061	4.260**	37.50	6.48	.712	6.980**	28.93	5.27	-.044	9.477**
LE Approach													
LE	5	30.80	7.86	-.891	-2.403	42.60	3.38	-.418	-1.270	45.80	3.31	.514	-4.948**
LE-AV	7	34.00	10.25	.704	-3.159*	42.86	5.82	.789	-4.078**	48.43	4.04	.328	-3.931*
Total	12	33.67	9.46	.316	-3.424**	42.75	4.95	.458	-3.364**	47.33	3.97	.413	-5.493**
Pilot	4	33.25	8.50	-.448	-1.719	43.75	5.76	.736	-3.154	50.00	3.54	-.674	-2.994
All Methods	30	39.27	10.10	-.256	- .480	40.43	6.44	.635	.892	39.10	10.59	-.583	.049

* P<.05

** P<.01

Table 7.31

Teacher Competence Rating in Replication 1

Method and Approach	N	Mean	Median	S.D.	Range
SC Approach					
BR	6	2.67	3.00	0.48	2 - 3
PV	8	2.62	3.00	1.22	0 - 4
Total	14	2.64	3.00	0.97	0 - 4
LE Approach					
LE	5	1.80	2.00	1.17	0 - 3
LE-AV	7	2.71	3.00	1.03	1 - 4
Total	12	2.33	2.50	1.18	0 - 4
Pilot	4	4.00	4.00	.00	4 - 4
All Methods	30	2.70	3.00	1.13	0 - 4

Table 8.1

Distribution of Methods in Schools, Replication 2

School	Method					N Classes
	BR	PV	LE	LE-AV	Pilot	
A					3	3
B					1	1
C	1		1			2
E		1	1			2
G	2		1			3
H		1		1		2
I	2					2
J	1			2		3
K		1		2		3
L		2	2			4
N Classes	6	5	5	5	4	25

[a] Schools D and F did not participate

Table 8.2

Distribution of Pupils in Methods, Replication 2

Method and Approach	Children in Replication 1	Children not in Replication 1	Holdovers	Total	% of Replication 1 Children
SC Approach					
BR	74	92	3	169	43.8%
PV	84	50	3	137	61.4%
Total	158	142	6		
LE Approach					
LE	85	51	1	137	62.0%
LE-AV	90	46	10	146	61.7%
Total	175	97	11		
Pilot	72	34		106	67.9%
Total	405	273	17	695	58.3%

Table 8.3

Distribution of Pupils in Methods and Schools, Replication 2

	METHOD											
	BR		PV		LE		LE-AV		Pilot		Total[a]	
School	R	N	R	N	R	N	R	N	R	N	R	N
A									59	23	59	23
B									13	11	13	11
C	18	12			18	12					36	24
E			16	16	16	16					32	32
G	23	25			10	12					33	37
H			20	5			23	5			43	10
I	18	45									18	45
J	15	10					34	22			49	32
K			17	8			33	19			50	27
L			31	21	41	11					72	32
Total	74	92	84	50	85	51	90	46	72	34	405	273
Means	12.3	15.3	16.8	10.0	17.0	10.2	18.0	9.2	18.0	8.5		

[a] Holdovers removed

R = Replication Children

N = Non-Replication Children

Table 8.4

Teacher Age and Experience in Replication 2

Method and Approach	N	Age in Years		Total Years Experience		Grade 2 Experience	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach							
BR	6	54.17	3.86	11.83	6.87	5.33	2.56
PV	5	42.60	9.85	8.00	3.03	4.20	2.48
Total	11	48.91	9.24	10.09	5.79	4.82	2.59
LE Approach							
LE	5	41.20	10.85	6.60	2.42	3.60	1.50
LE-AV	5	30.80	7.83	4.00	2.10	3.40	1.50
Total	10	36.00	10.80	5.30	2.61	3.50	1.50
Pilot	4	37.00	10.56	13.25	12.70	5.00	2.92
All Methods	25	41.84	11.89	8.68	7.22	4.32	2.38

Table 8.5

Raw Score for First-Grade Metropolitan Pretests, Replication 2 (Class as Unit)

Method and Approach	Wd. Mean.		Listening		Matching		Alphabet	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	7.62	1.87	9.32	0.62	5.22	1.00	7.44	1.10
PV	5.72	0.50	8.17	0.25	5.11	1.10	7.15	1.87
Total	6.76	1.71	8.80	0.75	5.17	1.05	7.31	1.51
LE Approach								
LE	6.75	1.95	8.44	0.53	4.81	1.08	8.36	1.12
LE-AV	5.66	0.69	8.57	0.79	4.55	0.89	5.86	0.33
Total	6.20	1.56	8.50	0.67	4.68	1.00	7.11	1.50
Pilot	5.62	0.70	8.58	0.45	6.64	1.12	8.74	0.43
All Methods	6.35	1.58	8.64	0.70	5.21	1.24	7.46	1.50

Table 8.6

Raw Score Results for First-Grade Stanford Posttests, Replication 2
(Class as Unit)

Method and Approach	Word Reading		Para. Mean.		Vocabulary		Spelling		Word St. Sk.	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach										
BR	13.88	3.08	10.53	1.53	15.00	1.00	7.10	3.00	26.15	3.55
PV	13.84	2.23	9.80	2.80	14.68	1.93	7.67	3.27	27.80	4.03
Total	13.86	2.73	10.20	2.23	14.85	1.51	7.36	3.14	26.90	3.86
LE Approach										
LE	14.89	3.88	12.42	5.05	13.95	0.74	6.65	1.57	25.81	1.78
LE-AV	12.20	1.94	9.77	3.09	14.31	1.41	5.36	2.92	25.33	2.91
Total	13.34	3.35	11.10	4.39	14.13	1.14	6.00	2.43	25.57	2.42
Pilot	18.28	1.39	12.85	1.42	14.62	1.79	9.82	0.46	31.90	2.33
All Methods	14.44	3.30	10.98	3.32	14.52	1.47	7.21	2.91	27.17	3.79

Table 8.7

Raw Score Results for MAT Posttests, Replication 2
(Class as Unit)

Method and Approach	Word Knowl.		Word Discrim.		Reading		Spelling		Arithmetic	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach										
BR	18.81	3.39	22.95	6.03	25.41	6.99	17.08	5.13	41.65	8.32
PV	18.40	2.59	24.75	2.46	21.20	2.93	18.04	2.20	37.00	1.30
Total	18.62	3.06	23.77	4.84	23.50	5.91	17.52	4.10	39.54	6.63
LE Approach										
LE	19.07	3.37	22.69	2.67	24.26	2.39	17.39	3.74	38.58	6.43
LE-AV	15.98	2.49	20.32	3.65	21.67	2.99	15.36	3.46	31.82	6.98
Total	17.52	3.34	21.50	3.41	22.96	3.00	16.38	3.74	35.20	7.51
Pilot	20.58	1.37	26.17	1.71	26.36	2.13	19.93	1.58	41.71	6.05
All Methods	18.49	3.16	23.25	4.26	23.74	4.59	17.45	3.85	38.15	7.36

Table 8.8

Intercorrelations of 41 First and Second Grade Variables, Replication 2

(Child as Unit)

VARIABLE	1	2	3	4	5	6	7	8	9	10
1 Met. Readiness Wd Mng	1.000	0.364**	0.192**	0.229**	0.006	0.576**	0.346**	0.357**	0.498**	0.554**
2 Met. Readiness Listening	0.364**	1.000	0.265**	0.321**	0.160**	0.331*	0.365**	0.187	0.190	0.095
3 Met. Readiness Matching	0.192**	0.265**	1.000	0.497**	0.251**	0.458**	0.454**	0.318*	0.448**	0.434**
4 Met. Readiness Alphabet	0.229**	0.321**	0.497**	1.000	0.250**	0.628**	0.431**	0.263*	0.370**	0.510**
5 Pre Gr. 1 School Exp.	0.006	0.160**	0.251**	0.250**	1.000	0.314*	0.184	0.372**	0.215	0.402**
6 Gr 1 Macmillan Rating	0.576**	0.331**	0.458**	0.628**	0.314*	1.000	0.391**	0.335**	0.511**	0.705***
7 Gr 1 Macmillan Visual	0.346**	0.365**	0.454**	0.431**	0.184	0.391**	1.000	0.326**	0.461**	0.305*
8 Gr 1 Macmillan Auditory	0.357**	0.187	0.318*	0.263*	0.372**	0.335**	0.326**	1.000	0.221	0.337**
9 Gr 1 Macmillan Vocabulary	0.498**	0.190	0.448**	0.370**	0.215	0.511**	0.461**	0.221	1.000	0.542**
10 Gr 1 Macmillan Total	0.554**	0.095	0.434**	0.510**	0.402**	0.705**	0.305*	0.337**	0.542**	1.000
11 Gr 1 Queens College Visual	0.418**	0.401**	0.286*	0.388 **	0.484**	0.000	0.000	0.000	0.000	0.000
12 Gr 1 CRAFT Word Recognition	0.132***	0.194**	0.298**	0.287**	0.161**	0.303*	0.140	0.151	0.113	0.239
13 Gr 1 Pupil San Diego	0.147 **	0.223**	0.219**	0.188**	0.077	0.116	0.195	-0.086	0.144	-0.089
14 Gr 1 Stanford Wd Rdg	0.305**	0.307**	0.358**	0.472**	0.197**	0.437**	0.436**	0.325**	0.369**	0.324*
15 Gr 1 Stanford Para. Mng	0.303**	0.241**	0.399**	0.456**	0.160**	0.423**	0.428**	0.283*	0.320*	0.297*
16 Gr 1 Stanford Vocabulary	0.332**	0.280**	0.372**	0.283**	0.112*	0.163	0.211	0.279*	0.192	0.022
17 Gr 1 Stanford Spelling	0.197**	0.246**	0.422**	0.556**	0.252**	0.306*	0.391**	0.321**	0.284*	0.300*
18 Gr 1 Stanford Wd St. Sk.	0.273**	0.289**	0.461**	0.537**	0.238**	0.309*	0.538**	0.208	0.469**	0.248
19 Gr 1 Gilmore Accuracy	0.239	0.270 *	0.257 *	0.541**	0.185	0.356	0.524	0.282	0.337	0.465
20 Gr 1 Gilmore Rate	0.287 *	0.207	0.110	0.396**	0.029	0.025	0.475	-0.095	0.180	0.151

Table 8.8 cont.

VARIABLE	1	2	3	4	5	6	7	8	9	10
21 Gr 1 Fry List	0.156	0.083	0.139	0.233*	0.176	0.431	0.383	0.467	0.057	0.454
22 Gr 1 Gates Wd Pronunciation	0.236	0.289*	0.232	0.511**	0.182	0.425	0.606*	0.333	0.424	0.554*
23 Gr 1 WS: Mechanics Ratio	-0.224	-0.139	0.172	0.323*	0.131	0.009	0.459	0.339	0.379	0.274
24 Gr 1 WS: Wds Spelled Correctly	0.196	-0.049	0.135	0.169	0.105	-0.295	0.265	-0.175	-0.002	-0.156
25 Gr 1 WS: Running Words	0.175	-0.038	0.098*	0.129	0.117	-0.310	0.242	-0.238	-0.078	-0.200
26 Gr 2 10/66 MAT Wd Knowl.	0.223**	0.243**	0.417**	0.564**	0.213**	0.338*	0.569**	0.238	0.447**	0.220
27 Gr 2 Pupil San Diego	0.068	0.191**	0.118*	0.136**	0.114*	0.192	0.100	-0.114	0.070	0.078
28 Gr 2 4/67 MAT Wd Knowl.	0.289**	0.262**	0.385**	0.519**	0.250**	0.338**	0.471**	0.353**	0.315*	0.274*
29 Gr 2 4/67 MAT Wd Discrim.	0.156**	0.192**	0.398**	0.465**	0.220**	0.388**	0.475**	0.363**	0.292*	0.159
30 Gr 2 4/67 MAT Reading	0.221**	0.243**	0.444**	0.503**	0.193**	0.352**	0.442**	0.371**	0.344**	0.297*
31 Gr 2 4/67 MAT Spelling	0.157**	0.181**	0.370**	0.498**	0.220**	0.366**	0.356**	0.244	0.227	0.192
32 Gr 2 WS: Running Words	0.035	0.171	0.174	0.097	0.007	-0.399	0.346	-0.022	0.110	-0.205
33 Gr 2 WS: Different Words	0.069	0.182	0.181	0.129	-0.001	-0.268	0.201	-0.214	0.254	-0.167
34 Gr 2 WS: Wds Spelled Correctly	0.071	0.181	0.229*	0.127	-0.033	-0.411	0.406	-0.047	0.073	-0.207
35 Gr 2 WS: Polysyllabic Words	0.155	0.235 *	0.150	0.198*	-0.025	-0.339	0.091	-0.144	0.298	-0.232
36 Gr 2 WS: Mechanics Ratio	0.090	0.112	0.178	0.289**	0.185	-0.070	0.416	0.345	-0.101	0.113
37 Gr 2 10/66 MAT Reading	0.181**	0.188**	0.438**	0.489**	0.164**	0.333	0.528**	0.216	0.452**	0.300*
38 Gr 2 Gilmore Accuracy	-0.112	-0.033	0.174	0.252*	0.122	0.052	0.306	0.121	0.284	0.182
39 Gr 2 Gilmore Rate	0.106	0.009	0.417**	0.188	0.056	0.389	0.230	0.200	0.323	0.410
40 Gr 2 Gates Wd Pronunciation	-0.062	-0.031	0.286**	0.409**	0.185	0.201	0.499	0.283	0.719**	0.439
41 Gr 2 Fry List	-0.057	-0.008	0.325**	0.394 **	0.203	0.037	0.333	0.043	0.418	0.188

Table 8.8 cont.

VARIABLE	11	12	13	14	15	16	17	18	19	20
1 Met. Readiness Wd Mng	0.418**	0.132**	0.147**	0.305**	0.303**	0.332**	0.197**	0.273**	0.239*	0.287*
2 Met. Readiness Listening	0.401**	0.194**	0.223**	0.307**	0.241**	0.280**	0.246**	0.289**	0.270*	0.207
3 Met. Readiness Matching	0.286*	0.298**	0.219**	0.358**	0.399**	0.372**	0.422**	0.461**	0.257*	0.110
4 Met. Readiness Alphabet	0.388 *	0.287**	0.188**	0.472**	0.456**	0.283**	0.556**	0.537**	0.541**	0.396**
5 Pre Gr. 1 School Exp..	0.484**	0.161**	0.077	0.197**	0.168**	0.112*	0.252**	0.235**	0.185	0.029
6 Gr 1 Macmillan Rating	0.000	0.303*	0.116	0.437**	0.423**	0.163	0.306*	0.309*	0.356	0.023
7 Gr 1 Macmillan Visual	0.000	0.140	0.195	0.436**	0.428**	0.211	0.391**	0.538**	0.524	0.475
8 Gr 1 Macmillan Auditory	0.000	0.151	-0.086	0.325**	0.283*	0.279*	0.321*	0.208	0.282	-0.095
9 Gr 1 Macmillan Vocabulary	0.000	0.113	0.144	0.369**	0.320*	0.192	0.284*	0.469**	0.337	0.180
10 Gr 1 Macmillan Total	0.000	0.239	-0.089	0.324*	0.297*	0.022	0.300*	0.248	0.465	0.151
11 Gr 1 Queens College Visual	1.000	0.356**	0.269 *	0.349*	0.475**	0.290*	0.399**	0.381**	0.629*	0.609*
12 Gr 1 CRAFT Word Recognition	0.356**	1.000	0.107*	0.262**	0.274**	0.192**	0.206**	0.247**	0.223	0.165
13 Gr 1 Pupil San Diego	0.269 *	0.107*	1.000	0.305 **	0.299**	0.231**	0.244**	0.324**	0.301*	0.342**
14 Gr 1 Stanford Wd Rdg	0.349*	0.262**	0.305**	1.000	0.657**	0.387**	0.681**	0.696**	0.714**	0.411**
15 Gr 1 Stanford Para. Mng	0.475**	0.274**	0.299**	0.657**	1.000	0.345**	0.689**	0.642**	0.666**	0.575**
16 Gr 1 Stanford Vocabulary	0.290*	0.192**	0.231**	0.387**	0.345**	1.000	0.355**	0.439**	0.425**	0.302**
17 Gr 1 Stanford Spelling	0.399**	0.206**	0.244**	0.681**	0.689**	0.355**	1.000	0.745**	0.864**	0.608**
18 Gr 1 Stanford Wd St. Sk.	0.381**	0.247**	0.324**	0.696**	0.642**	0.439**	0.745**	1.000	0.799**	0.541**
19 Gr 1 Gilmore Accuracy	0.629*	0.223	0.301*	0.714**	0.666**	0.425**	0.864**	0.799**	1.000	0.609**
20 Gr 1 Gilmore Rate	0.609*	0.165	0.342**	0.411**	0.575**	0.302**	0.608**	0.541**	0.609**	1.000

Table 8.8 cont.

VARIABLE	11	12	13	14	15	16	17	18	19	20
21 Gr 1 Fry List	0.516*	0.176	0.260*	0.605 **	0.448**	0.171	0.542**	0.587**	0.665*	0.181
22 Gr 1 Gates Wd Pronunciation	0.339	0.172	0.335**	0.728**	0.670 **	0.390**	0.832**	0.801**	0.914**	0.553**
23 Gr 1 WS: Mechanics Ratio	0.517*	0.106	0.280*	0.179	0.252 **	0.241*	0.348**	0.216	0.306*	0.372**
24 Gr 1 WS: Wds Spelled Correctly	0.647**	0.163	0.223	0.422**	0.364**	0.136	0.388**	0.395**	0.506**	0.285*
25 Gr 1 WS: Running Words	0.608*	0.160	0.185	0.377**	0.319**	0.104	0.331**	0.353**	0.447**	0.204
26 Gr 2 10/66 MAT Wd Knowl.	0.422**	0.195**	0.295**	0.653**	0.664**	0.339**	0.778**	0.741**	0.839**	0.711**
27 Gr 2 Pupil San Diego	0.214	0.005	0.197**	0.139**	0.156**	0.123*	0.119*	0.216**	0.191	0.300*
28 Gr 2 4/67 MAT Wd Knowl.	0.469**	0.188**	0.279**	0.676**	0.635**	0.353**	0.739**	0.718**	0.739**	0.60[illegible]**
29 Gr 2 4/67 MAT Wd Discrim.	0.479**	0.156**	0.236**	0.600**	0.578**	0.318**	0.732**	0.702**	0.717**	0.636**
30 Gr 2 4/67 MAT Reading	0.488**	0.223**	0.307**	0.616**	0.593**	0.339**	0.685**	0.685**	0.729**	0.523**
31 Gr 2 4/67 MAT Spelling	0.468**	0.159**	0.250**	0.604**	0.580**	0.269**	0.733**	0.673**	0.709**	0.597**
32 Gr 2 WS: Running Words	0.799**	0.105 *	0.224*	0.233*	0.348**	0.141	0.348**	0.248*	0.206	0.400**
33 Gr 2 WS: Different Words	0.840**	0.144	0.292**	0.335**	0.375 **	0.186	0.377**	0.299**	0.273*	0.390**
34 Gr 2 WS: Wds Spelled Correctly	0.814**	0.112	0.272**	0.302**	0.392**	0.133	0.401**	0.296**	0.245	0.415**
35 Gr 2 WS: Polysyllabic Words	0.678**	0.192	0.395**	0.444**	0.368**	0.256**	0.417	0.358**	0.331*	0.393**
36 Gr 2 WS: Mechanics Ratio	0.478*	-0.068	0.020	0.187	0.185	0.086	0.262**	0.319 **	0.264	0.318 *
37 Gr 2 10/66 MAT Reading	0.370**	0.282**	0.267**	0.605**	0.622*	0.279**	0.624**	0.653**	0.689**	0.519**
38 Gr 2 Gilmore Accuracy	0.762 **	0.085	0.265***	0.535**	0.481 **	0.383 **	0.664**	0.629**	0.690**	0.587**
39 Gr 2 Gilmore Rate	0.516 *	0.318 **	0.118	0.430**	0.486**	0.119	0.507**	0.363**	0.340**	0.399**
40 Gr 2 Gates Wd Pronunciation	0.668**	0.141	0.224*	0.643**	0.614**	0.290**	0.762**	0.750**	0.831**	0.572**
41 Gr 2 Fry List	0.602**	0.156	0.211*	0.641**	0.559**	0.337**	0.685**	0.732**	0.798**	0.448**

Table 8.8 cont.

VARIABLE	21	22	23	24	25	26	27	28	29	30
1 Met. Readiness Wd Mng	0.156	0.236*	-0.224	0.196	0.175	0.223**	0.068	0.289**	0.156**	0.221**
2 Met. Readiness Listening	0.083	0.285*	-0.139	-0.049	-0.038	0.243**	0.191**	0.262**	0.192**	0.243**
3 Met. Readiness Matching	0.139 *	0.232	0.172	0.135	0.098	0.417**	0.118*	0.385**	0.398**	0.444**
4 Met. Readiness Alphabet	0.233*	0.511 **	0.323**	0.169	0.129	0.564**	0.136**	0.519**	0.465**	0.507**
5 Pre Gr. 1 School Exp.	0.176	0.182	0.131	0.105	0.117	0.213**	0.114*	0.250**	0.220**	0.193**
6 Gr 1 Macmillan Rating	0.431	0.425	0.009	-0.295	-0.310	0.338*	0.192	0.338**	0.388**	0.352**
7 Gr 1 Macmillan Visual	0.383	0.606*	0.459	0.265	0.242	0.569**	0.100	0.471**	0.475**	0.442**
8 Gr 1 Macmillan Auditory	0.467	0.333	0.339	-0.175	-0.238	0.238	-0.114	0.353**	0.363**	0.371**
9 Gr 1 Macmillan Vocabulary	0.057	0.424	0.379	-0.002	-0.078	0.447**	0.070	0.315*	0.292*	0.344**
10 Gr 1 Macmillan Total	0.454	0.554*	0.274	-0.156	-0.200	0.220	0.078	0.274*	0.159	0.297*
11 Gr 1 Queens College Visual	0.516*	0.339	0.517*	0.647**	0.608*	0.422**	0.214	0.469**	0.479**	0.488**
12 Gr 1 CRAFT Word Recognition	0.176	0.172	0.106	0.163	0.160	0.195**	0.005	0.188**	0.156**	0.223**
13 Gr 1 Pupil San Diego	0.260 *	0.335**	0.280*	0.223	0.185	0.295**	0.197**	0.279**	0.236**	0.307**
14 Gr 1 Stanford Wd Rdg	0.605**	0.720**	0.179	0.422**	0.377**	0.653**	0.139**	0.676**	0.600**	0.616**
15 Gr 1 Stanford Para. Mng	0.448**	0.670**	0.252*	0.364**	0.319**	0.664**	0.156**	0.635**	0.578**	0.593**
16 Gr 1 Stanford Vocabulary	0.171	0.390**	0.241**	0.136	0.104	0.339**	0.123*	0.353**	0.318**	0.339**
17 Gr 1 Stanford Spelling	0.542**	0.832**	0.348**	0.388**	0.331**	0.778**	0.119*	0.739**	0.732**	0.685**
18 Gr 1 Stanford Wd St. Sk.	0.587**	0.801**	0.216	0.395**	0.353**	0.741**	0.216**	0.718**	0.702**	0.685**
19 Gr 1 Gilmore Accuracy	0.665**	0.914**	0.306*	0.506**	0.447**	0.839**	0.191	0.739**	0.717**	0.729**
20 Gr 1 Gilmore Rate	0.181	0.553**	0.372**	0.285*	0.204	0.711**	0.300*	0.602**	0.636**	0.523**

Table 8.8 cont.

VARIABLE	21	22	23	24	25	26	27	28	29	30
21 Gr 1 Fry List	1.000	0.764 **	0.124	0.571 **	0.549**	0.487**	0.204	0.436 **	0.387**	0.533**
22 Gr 1 Gates Wd Pronunciation	0.764 **	1.000	0.368**	0.478**	0.417**	0.753**	0.280 *	0.676**	0.693**	0.716**
23 Gr 1 WS: Mechanics Ratio	0.124	0.368**	1.000	0.216	0.161	0.279*	0.083	0.221	0.356**	0.239 *
24 Gr 1 WS: Wds Spelled Correctly	0.571 **	0.478**	0.216	1.000	0.584**	0.451**	0.079	0.410**	0.393**	0.394**
25 Gr 1 WS: Running Words	0.549 **	0.417**	0.161	0.984**	1.000	0.388**	0.068	0.377**	0.321**	0.355**
26 Gr 2 10/66 MAT Wd Knowl.	0.487 **	0.753 **	0.279*	0.451**	0.388**	1.000	0.191**	0.811**	0.795**	0.749**
27 Gr 2 Pupil San Diego	0.204	0.280	0.083	0.079	0.068	0.191**	1.000	0.218**	0.223**	0.249**
28 Gr 2 4/67 MAT Wd Knowl.	0.436**	0.676**	0.221	0.410**	0.377**	0.811**	0.218**	1.000	0.811**	0.801**
29 Gr 2 4/67 MAT Wd Discrim.	0.387**	0.693**	0.356**	0.393**	0.321**	0.795**	0.223**	0.811**	1.000	0.717**
30 Gr 2 4/67 MAT Reading	0.533**	0.716**	0.239*	0.394**	0.355**	0.749*	0.249**	0.801**	0.717**	1.000
31 Gr 2 4/67 MAT Spelling	0.378 **	0.669**	0.386**	0.390**	0.317	0.776**	0.244**	0.806**	0.871**	0.732**
32 Gr 2 WS: Running Words	0.004	0.187	0.254*	0.246	0.191	0.389**	0.043	0.396**	0.404**	0.471**
33 Gr 2 WS: Different Words	0.114	0.261	0.241	0.236	0.177	0.454**	0.125	0.481**	0.480**	0.543**
34 Gr 2 WS: Wds Spelled Correctly	0.024	0.206	0.254	0.248	0.192	0.433**	0.076	0.459**	0.454**	0.538**
35 Gr 2 WS: Polysyllabic Words	0.108	0.287*	0.275*	0.163	0.123	0.511**	0.180	0.538**	0.454**	0.516**
36 Gr 2 WS: Mechanics Ratio	-0.022	0.193	0.244	-0.018	-0.048	0.216*	0.227**	0.335**	0.291**	0.279**
37 Gr 2 10/66 MAT Reading	0.528**	0.645**	0.203	0.372**	0.318**	0.689**	0.184**	0.636**	0.576**	0.680**
38 Gr 2 Gilmore Accuracy	0.350**	0.635**	0.372**	0.393**	0.313*	0.797**	0.348**	0.699**	0.821**	0.689**
39 Gr 2 Gilmore Rate	0.278*	0.323*	0.236	0.384**	0.341**	0.431**	0.222*	0.552**	0.563**	0.532**
40 Gr 2 Gates Wd Pronunciation	0.622**	0.818**	0.405**	0.438**	0.371**	0.800**	0.387**	0.794**	0.873**	0.765**
41 Gr 2 Fry List	0.641**	0.796**	0.268*	0.474**	0.416**	0.789**	0.324**	0.728**	0.800**	0.747**

Table 8.8 cont.

VARIABLE	31	32	33	34	35	36	37	38	39	40	41
1 Met. Readiness Wd Mng	0.157**	0.035	0.069	0.071	0.155	0.090	0.187*	-0.112	0.106	-0.062	-0.057
2 Met. Readiness Listening	0.181**	0.171	0.182	0.181	0.233*	0.112	0.188**	-0.033	0.009	-0.031	-0.008
3 Met. Readiness Matching	0.370**	0.174	0.181	0.229*	0.150	0.178	0.438**	0.174	0.417**	0.286**	0.325**
4 Met. Readiness Alphabet	0.498**	0.097	0.129	0.127	0.198*	0.289**	0.489**	0.252*	0.188	0.409**	0.394**
5 Pre Gr. 1 School Exp.	0.220**	0.007	-0.001	-0.033	-0.025	0.185	0.164**	0.122	0.056	0.185	0.203*
6 Gr 1 Macmillan Rating	0.366**	-0.399	-0.268	-0.411	-0.339	-0.070	0.333*	0.052	0.389	0.201	0.037
7 Gr 1 Macmillan Visual	0.356**	0.346	0.201	0.406	0.091	0.416	0.528**	0.306	0.230	0.499	0.333
8 Gr 1 Macmillan Auditory	0.244	-0.022	-0.214	-0.047	-0.144	0.345	0.216	0.121	0.200	0.283	0.043
9 Gr 1 Macmillan Vocabulary	0.227	0.110	0.254	0.073	0.298	-0.101	0.452**	0.284	0.323	0.719**	0.418
10 Gr 1 Macmillan Total	0.192	-0.205	-0.167	-0.207	-0.232	0.113	0.300 *	0.182	0.410	0.439	0.188
11 Gr 1 Queens College Visual	0.468**	0.799**	0.840**	0.814**	0.678**	0.478*	0.370**	0.762**	0.516*	0.668**	0.602 **
12 Gr 1 CRAFT Word Recognition	0.159**	0.105	0.144	0.112	0.192	-0.068	0.282**	0.085	0.318**	0.141	0.156
13 Gr 1 Pupil San Diego	0.250**	0.224*	0.292**	0.272**	0.395**	0.020	0.267**	0.265**	0.118	0.224*	0.211 *
14 Gr 1 Stanford Wd Rdg	0.604**	0.233**	0.335**	0.302**	0.444**	0.187	0.605**	0.535**	0.430**	0.643**	0.641 **
15 Gr 1 Stanford Para. Mng	0.580**	0.348**	0.375**	0.392**	0.368**	0.185	0.622**	0.481**	0.486**	0.614**	0.559 **
16 Gr 1 Stanford Vocabulary	0.269**	0.141	0.186	0.133	0.256**	0.086	0.279**	0.383**	0.119	0.290**	0.337 **
17 Gr 1 Stanford Spelling	0.733**	0.348**	0.377**	0.401**	0.417**	0.262**	0.624**	0.664**	0.507**	0.762**	0.685 **
18 Gr 1 Stanford Wd St. Sk.	0.672**	0.248*	0.299**	0.296**	0.357**	0.319**	0.653**	0.629**	0.363**	0.750**	0.732 **
19 Gr 1 Gilmore Accuracy	0.709**	0.206	0.273*	0.245	0.331*	0.264	0.689**	0.690**	0.340**	0.831**	0.798 **
20 Gr 1 Gilmore Rate	0.597**	0.400**	0.390**	0.415**	0.393**	0.318*	0.519**	0.587**	0.399**	0.572**	0.448 **

Table 8.8 cont.

VARIABLE	31	32	33	34	35	36	37	38	39	40	41
21 Gr 1 Fry List	0.378**	0.004	0.114	0.024	0.108	-0.022	0.528**	0.350**	0.278**	0.622**	0.641 **
22 Gr 1 Gates Wd Pronunciation	0.669**	0.187	0.261	0.206	0.287**	0.193	0.645**	0.635**	0.323	0.818**	0.796 **
23 Gr 1 WS: Mechanics Ratio	0.386**	0.254	0.241	0.254	0.275	0.244	0.203	0.372**	0.236	0.405**	0.268 *
24 Gr 1 WS: Wds Spelled Correctly	0.390**	0.246	0.236	0.248	0.163	-0.018	0.372**	0.393**	0.384**	0.438**	0.474 **
25 Gr 1 WS: Running Words	0.317**	0.191	0.177	0.192	0.123	-0.048	0.318**	0.313*	0.341**	0.371**	0.416 **
26 Gr 2 10/66 MAT Wd Knowl.	0.776**	0.389**	0.454**	0.433**	0.511**	0.216*	0.689**	0.797**	0.431**	0.800**	0.789 **
27 Gr 2 Pupil San Diego	0.244**	0.043	0.125	0.076	0.180	0.227*	0.184**	0.348**	0.222*	0.387**	0.324 **
28 Gr 2 4/67 MAT Wd Knowl.	0.806**	0.396**	0.481**	0.459**	0.538**	0.335**	0.638**	0.699**	0.552**	0.794**	0.728 **
29 Gr 2 4/67 MAT Wd Discrim.	0.871**	0.404**	0.480**	0.454**	0.454**	0.291**	0.576**	0.821**	0.563**	0.873**	0.800 **
30 Gr 2 4/67 MAT Reading	0.732**	0.471**	0.543**	0.538**	0.516**	0.279**	0.680**	0.689**	0.532**	0.765**	0.747 **
31 Gr 2 4/67 MAT Spelling	1.000	0.456**	0.526**	0.517**	0.495**	0.309**	0.569**	0.801**	0.558**	0.838**	0.733 **
32 Gr 2 WS: Running Words	0.456**	1.000	0.926**	0.969**	0.687**	0.127	0.224*	0.419**	0.237*	0.338**	0.284 **
33 Gr 2 WS: Different Words	0.526**	0.926**	1.000	0.916**	0.806**	0.094	0.320**	0.495**	0.296**	0.443**	0.386 **
34 Gr 2 WS: Wds Spelled Correctly	0.517**	0.969**	0.916**	1.000	0.723**	0.212*	0.306**	0.453**	0.322**	0.385**	0.327 **
35 Gr 2 WS: Polysyllabic Words	0.495**	0.687**	0.806**	0.723**	1.000	0.153	0.375**	0.442**	0.313**	0.464**	0.438 **
36 Gr 2 WS: Mechanics Ratio	0.309**	0.127	0.094	0.212*	0.153	1.000	0.297**	0.211*	0.071	0.248*	0.235 *
37 Gr 2 10/66 MAT Reading	0.569**	0.224*	0.320**	0.306**	0.375**	0.297**	1.000	0.596**	0.406**	0.681**	0.697 **
38 Gr 2 Gilmore Accuracy	0.801**	0.419**	0.495**	0.453**	0.442**	0.211*	0.596**	1.000	0.417**	0.801**	0.725 **
39 Gr 2 Gilmore Rate	0.558**	0.237*	0.296**	0.322**	0.313**	0.071	0.406**	0.417**	1.030	0.557**	0.473 **
40 Gr 2 Gates Wd Pronunciation	0.838**	0.338**	0.443**	0.385**	0.464**	0.248*	0.681**	0.801**	0.557**	1.000	0.894 **
	0.733**	0.284**	0.386**	0.327**	0.438**	0.235*	0.697**	0.725**	0.473**	0.894**	1.000

Table 8.9

Multiple Regression Equations for Metropolitan Subtests, Predicted by Pretests, Replication 2

Test	Constant	$+X_1$	$+X_2$	$+X_3$	$+X_4$
MAT Word Knowl.	8.291	0.502	0.000	0.390	0.680
MAT Word Discrim.	14.927	0.000	0.000	0.646	0.670
MAT Reading	12.984	0.000	0.000	0.948	0.897
MAT Spelling	8.576	0.000	0.000	0.508	0.846

$Y = \text{Constant} + X_1 + X_2 + X_3 + X_4$

X_1= Metropolitan Readiness Word Meaning

X_2= Metropolitan Readiness Listening

X_3= Metropolitan Readiness Matching

X_4= Metropolitan Readiness Alphabet

Table 8.10

Multiple Regression Equations for Metropolitan Subtests, Predicted by Posttests, Replication 2

Test	Constant	$+X_1$	$+X_2$	$+X_3$	$+X_4$	$+X_5$
MAT Word Knowl.	5.328	0.240	0.000	0.000	0.494	0.226
MAT Word Discrim.	9.522	0.000	0.000	0.000	0.676	0.328
MAT Reading	6.320	0.266	0.000	0.000	0.603	0.374
MAT Spelling	4.116	0.000	0.000	0.000	0.792	0.284

$Y = \text{Constant} + X_1 + X_2 + X_3 + X_4 + X_5$

X_1 = Stanford Word Reading

X_2 = Stanford Paragraph Meaning

X_3 = Stanford Vocabulary

X_4 = Stanford Spelling

X_5 = Stanford Word Study Skills

Table 8.11

MAT Posttest Results Adjusted by First-Grade Pretests, Replication 2
(Class as Unit)

Method and Approach	Word Knowledge		Word Discrim.		Reading		Spelling	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	18.46	7.34	22.63	12.18	26.43	13.62	16.61	10.08
PV	18.76	4.93	26.38	4.53	26.13	5.43	18.60	4.02
Total	18.60	6.06	24.34	9.28	26.29	10.23	17.61	7.65
LE Approach								
LE	18.93	6.97	21.78	4.97	23.54	5.06	16.68	7.92
LE-AV	15.05	4.88	18.86	7.69	20.76	5.92	14.85	7.13
Total	16.99	6.03	20.32	6.29	22.15	5.39	15.76	7.17
Pilot	21.57	3.18	27.32	4.06	25.71	5.17	20.57	3.69
All Methods	18.43	5.89	23.21	7.94	24.54	8.11	17.34	7.17

Table 8.12

MAT Posttest Results Adjusted by First-Grade Posttests, Replication 2 (Class as Unit)

Method and Approach	Word Knowledge		Word Discrim.		Reading		Spelling	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	19.49	4.97	22.94	9.93	26.72	11.90	16.88	7.72
PV	18.07	3.78	25.59	3.08	25.37	4.41	17.95	2.61
Total	18.85	4.31	24.14	7.42	26.10	8.89	17.37	5.73
LE Approach								
LE	20.15	5.92	22.92	4.71	24.62	5.17	18.06	8.15
LE-AV	15.31	3.01	19.19	5.82	21.03	3.41	15.14	5.09
Total	17.73	5.11	21.06	5.37	22.82	4.54	16.60	6.59
Pilot	19.37	2.23	25.68	2.99	23.67	3.57	18.88	2.62
All Methods	18.48	4.45	23.15	6.36	24.40	6.89	17.30	5.79

Table 8.14

Raw Score Results of Measures Related to Interest in Reading, Replication 2
(Child as Unit)

Method and Approach	Mean N	San Diego Pupil Inv.		Books Read Completely		Books Read Partially		Eagerness to Read		Maturity of Choices	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach											
BR	72	17.89	4.71	2.21	3.08	0.56	1.19	3.06	1.55	2.65	1.42
PV	83	18.32	4.06	7.86	11.34	2.41	3.71	3.53	1.29	3.05	1.15
Total	155	18.12	4.38	5.22	6.99	1.54	2.97	3.31	1.44	2.86	1.30
LE Approach											
LE	84	19.34	3.96	5.44	5.65	0.63	1.93	3.36	1.36	2.69	1.32
LE-AV	89	18.17	4.42	4.12	6.21	0.53	1.69	3.55	1.29	2.55	1.11
Total	173	18.73	4.25	4.76	5.98	0.58	1.81	3.46	1.33	2.62	1.22
Pilot	72	19.23	4.53	5.58	6.32	1.29	2.47	3.49	1.50	2.85	1.37
All Methods	400	18.58	4.35	5.08	7.32	1.08	2.47	3.41	1.40	2.76	1.28

Table 8.15

Raw Score Results for Subsample Measures, Replication 2
(Class as Unit)

Method and Approach	Gilmore Accuracy[a]		Gilmore Rate		Gates		Fry	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach								
BR	3.04	1.04	53.49	15.19	15.15	5.68	11.25	10.01
PV	3.47	.66	58.83	11.81	17.45	3.24	14.45	5.71
Total	3.24	.88	55.92	14.01	16.20	4.67	12.70	8.49
LE Approach								
LE	3.24	.40	70.55	8.12	17.90	2.33	12.05	4.74
LE-AV	3.17	.75	49.35	12.08	14.00	3.69	7.35	3.26
Total	3.20	.57	59.95	14.77	15.95	3.75	9.70	4.70
Pilot	3.09	.34	61.13	15.63	21.88	4.39	22.63	5.72
All Methods	3.20	.66	58.36	14.75	17.01	4.87	13.09	8.06

[a] Grade Equivalents

Table 8.16

Regression Equations for Subsample Measures,
Predicted by Pretests, Replication 2

Test	Constant +	X_1	+ X_2
Gilmore Rate	43.137	3.044	
Gates Word Pronunciation	11.602	0.000	0.147
Fry	4.693	0.000	1.114

Y = Constant + X_1 + X_2

X_1 = Met. Matching

X_2 = Met. Alphabet

Table 8.17

Adjusted Subsample Measures, Replication 2
(Class as Unit)

Method and Approach	Gilmore Rate		Gates Wd Pron.		Fry	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach						
BR	47.55	30.37	13.08	12.27	9.05	21.51
PV	58.49	25.45	18.10	7.17	16.10	12.34
Total	52.52	27.44	15.37	10.13	12.26	17.48
LE Approach						
LE	83.04	18.89	17.98	5.20	9.71	9.60
LE-AV	43.07	25.11	12.18	8.03	3.44	8.27
Total	63.05	29.71	15.08	7.07	6.57	9.07
Pilot	60.84	31.89	26.47	9.83	31.71	12.79
All Methods	58.06	29.55	17.03	9.88	13.10	16.32

Table 8.18

Raw Score Results on Writing Sample, Replication 2
(Child as Unit)

Method and Approach	N	Number Running Words		Number of Different Words		Number Spelled Correctly		Number of Polysyllabic Words		Mechanics Ratio	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach											
BR	24	40.46	21.67	24.17	9.82	34.33	19.55	4.54	2.15	66.54	18.35
PV	19	31.68	19.83	21.53	12.25	27.10	18.45	4.37	2.97	58.32	25.50
Total	43	36.58	21.33	23.00	11.04	31.14	19.41	4.46	2.55	62.91	22.18
LE Approach											
LE	20	31.35	24.02	21.80	14.55	27.55	21.18	5.10	3.51	71.80	18.79
LE-AV	20	25.20	15.46	18.10	11.12	21.30	14.75	3.35	3.38	54.15	22.94
Total	40	28.28	20.43	19.95	13.08	24.42	16.52	4.22	3.55	62.98	22.75
Pilot	16	25.44	13.78	19.25	9.68	21.44	13.06	4.31	3.05	55.75	22.69
All Methods	99	31.42	20.09	21.16	11.59	26.86	18.23	4.34	3.00	61.78	22.26

Table 8.19

Analysis of Variance Results for Replication 2

	Variables	df	F
Comparison of Methods			
1	MAT Word Knowledge Adjusted by Pretests	4x20	0.717
2	MAT Word Discrimination " " "	4x20	0.931
3	MAT Reading " " "	4x20	0.423
4	MAT Spelling " " "	4x20	0.414
5	MAT Word Knowledge Adjusted by Posttests	4x20	1.000
6	MAT Word Discrimination " " "	4x20	0.858
7	MAT Reading " " "	4x20	0.492
8	MAT Spelling " " "	4x20	0.275
9	Gilmore Accuracy	4x20	0.284
10	Gilmore Rate Adjusted	4x20	1.739
11	Gates Word Pronunciation Adjusted	4x20	1.790
12	Fry Adjusted	4x20	2.532
13	W.S.: No. Running Words	4x20	1.604
14	W.S.: No. Different Words	4x20	0.660
15	W.S.: No. Words Spelled Correctly	4x20	1.327
16	W.S.: No. Polysyllabic Words	4x20	0.576
Comparison of Approaches			
1	MAT Word Knowledge Adjusted by Pretests	1x19	0.370
2	MAT Word Discrimination " " "	1x19	1.320
3	MAT Reading " " "	1x19	1.306
4	MAT Spelling " " "	1x19	0.323
5	MAT Word Knowledge Adjusted by Posttests	1x19	0.294
6	MAT Word Discrimination " " "	1x19	1.171
7	MAT Reading " " "	1x19	1.096
8	MAT Spelling " " "	1x19	0.082
9	Gilmore Accuracy	1x19	0.011
10	Gilmore Rate	1x19	0.714
11	Gates Word Pronunciation Adjusted	1x19	0.006
12	Fry Adjusted	1x19	0.846
13	W.S.: No. Running Words	1x19	2.181
14	W.S.: No. Different Words	1x19	0.886
15	W.S.: No. Words Spelled Correctly	1x19	1.611
16	W.S.: No. Polysyllabic Words	1x19	0.040

Table 8.20

Analysis of Variance: Comparison of CRAFT 2 and Replication 2 Word Discrimination Adjusted by Pretests

Method	N Classes	Means		
		Original	Replication	Total
BR	6	24.97	22.64	23.81
PV	5	25.77	26.38	26.08
LE	5	22.52	21.71	22.12
LE-AV	5	18.15	18.87	18.51
Pilot	3	25.76	25.42	25.59
Total	24	23.30	22.79	23.05

Source	SS	df	MS	F
Between Teachers				
P/Method	44.2976	1	44.2976	.7350
Method	307.9670	3	102.6556	1.7033
T (Method + Pilot)	1145.0467	19	60.2656	
Total	1997.3108	23		
Within Teachers				
Year	3.2137	1	3.2137	.0808
Year XP/Method	.0560	1	.0560	.0014
Year X Method	17.0927	3	5.6975	.1433
Year XT (Method + Pilot)	755.1421	19	39.7443	
Total	775.5045	24		

* P<.05

** P<.01

Table 8.21

Summary of F Values Obtained in Analyses of Variance: Comparing CRAFT 2 and Replication 2 Results

Variable	P/Method df = 1/19	Method df = 3/19	Year df = 1/19	Year x P/Method df = 1/19	Year x Method df = 3/19
MAT WK adj. by Pretests	.1828	.9105	1.2472	.0486	.3974
MAT WD adj. by Pretests	.7350	1.7033	.0808	.0014	.1433
MAT Rdg. adj. by Pretests	.0473	.8287	.2240	.2096	.0637
MAT Spelling adj. by Pretests	.8877	.5549	.3355	.2466	.2758
MAT WK adj. by Posttests	.0576	1.0170	1.1165	.0755	.2685
MAT WD adj. by Posttests	.0735	2.3740	.1123	.1125	.0343
MAT Rdg. adj. by Posttests	.1423	.9354	.1893	.0987	.0397
MAT Spelling adj. by Posttests	.1909	.4954	.7479	.0551	.2330
Gilmore Accuracy (unadj.)	.1887	.4738	2.6793	2.1983	.5982
Gilmore Rate (adj.)	.0545	.8817	.4248	2.3850	1.1194
Gates (adj.)	2.0639	.1797	1.5914	.0087	1.0479
Fry (adj.)	1.5944	.5893	.7576	1.1224	.6133

Table 8.22

Comparison of Boys and Girls on Metropolitan Pretests, Replication 1

Method and Approach	Mean N	Word Meaning			Listening			Matching			Alphabet		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t
SC Approach													
BR													
Boys	73	7.34	2.82	1.50	9.23	1.91	1.31	4.75	2.56	-1.33	7.01	3.86	-0.14
Girls	64	6.61	2.85		8.66	2.95		5.42	3.21		7.11	4.11	
PV													
Boys	89	6.00	2.01	2.95**	8.19	2.57	0.27	5.17	2.90	0.87	6.57	4.70	-0.86
Girls	87	5.07	2.15		8.09	2.38		4.79	2.84		7.16	4.37	
Total													
Boys	162	6.61	2.50	3.09**	8.66	2.35	1.16	4.98	2.76	-0.24	6.77	4.34	-0.76
Girls	151	5.72	2.59		8.33	2.65		5.06	3.02		7.14	4.26	
LE Approach													
LE													
Boys	55	7.04	2.85	0.88	8.76	2.27	0.51	4.89	2.83	-0.08	7.59	4.29	-1.14
Girls	68	6.58	2.83		8.55	2.23		4.93	2.74		8.53	4.68	
LE-AV													
Boys	78	5.44	2.27	-0.44	8.51	8.51	0.13	3.91	2.83	-2.25*	5.44	4.15	-1.95
Girls	69	5.62	2.61		8.38	2.66		4.88	2.34		6.86	4.54	
Total													
Boys	133	6.10	2.64	0.03	8.61	6.70	0.24	4.31	2.87	-1.77	6.33	4.34	-2.46*
Girls	137	6.09	2.76		8.46	2.46		4.90	2.55		7.69	4.68	
Pilot													
Boys	42	5.53	2.83	0.48	8.21	2.40	-0.49	5.54	2.75	-2.53*	7.15	4.76	-1.97
Girls	50	5.28	1.98		8.46	2.45		7.12	3.11		9.27	5.34	
All Methods													
Boys	337	6.27	2.63	2.33*	8.58	4.59	0.57	4.79	2.83	-2.24*	6.64	4.40	-2.94**
Girls	338	5.80	2.60		8.40	3.55		5.29	2.95		7.67	4.66	

* P<.05

** P<.01

Table 8.23

Comparison of Boys and Girls on Metropolitan Pretests, Replication 2

Method and Approach	Mean N	Word Meaning			Listening			Matching			Alphabet		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t
SC Approach													
BR													
Boys	43	7.44	2.54	0.77	9.19	2.03	-0.14	4.91	2.61	-1.55	6.64	3.28	-1.88
Girls	29	6.97	2.46		9.28	3.03		6.03	3.17		8.31	3.84	
FV													
Boys	38	6.59	2.20	3.42**	8.64	2.67	1.59	5.16	2.93	0.25	7.16	4.68	0.25
Girls	44	4.91	2.21		7.73	2.45		5.00	2.85		6.91	4.15	
Total													
Boys	81	7.04	2.42	3.27**	8.93	2.37	1.37	5.03	2.77	-0.80	6.89	4.01	-0.88
Girls	73	5.73	2.52		8.35	2.80		5.41	3.02		7.47	4.09	
LE Approach													
LE													
Boys	34	6.65	2.72	0.75	8.44	2.27	0.12	4.94	2.[illegible]	0.06	8.00	4.26	-0.93
Girls	51	6.20	2.54		8.38	1.94		4.90	2.98		8.94	4.75	
LE-AV													
Boys	41	5.81	2.12	0.74	8.95	2.13	1.70	3.83	2.82	-2.09*	5.12	3.60	-1.64
Girls	46	5.43	2.62		8.04	2.81		5.04	2.52		6.49	4.14	
Total													
Boys	75	6.19	2.44	0.93	8.72	2.21	1.41	4.32	2.88	-1.48	6.40	4.16	-2.01*
Girls	97	5.83	2.61		8.22	2.40		4.97	2.77		7.76	4.63	
Pilot													
Boys	35	5.83	2.97	0.92	8.20	2.48	-1.17	5.52	2.55	-2.68**	7.67	4.72	-1.58
Girls	37	5.30	1.61		8.86	2.21		7.30	3.06		9.59	5.28	
All Methods													
Boys	191	6.49	2.58	3.14**	8.71	2.34	1.35	4.85	2.81	-2.36*	6.83	4.23	-2.57*
Girls	207	5.70	2.43		8.38	2.53		5.54	3.03		7.98	4.64	

* P<.05

** P<.01

Table 8.24

Raw Score Stanford Results for Boys and Girls, Replication 1

Subtests	Method and Approach	Boys			Girls			
		Mean	S.D.	N	Mean	S.D.	N	t
Word Reading	SC Approach							
	BR	13.03	6.06	73	14.24	8.17	63	-0.96
	PV	13.92	5.90	87	14.16	5.29	86	-0.28
	Total	13.51	5.99	160	14.19	6.66	149	-0.94
	LE Approach							
	LE	14.07	7.64	55	14.87	6.74	68	-0.59
	LE-AV	12.78	6.07	77	13.22	6.25	68	-0.43
	Total	13.32	6.89	132	14.04	6.55	136	-0.87
	Pilot	15.33	8.44	43	19.31	8.10	48	-2.26*
	All Methods	13.67	6.74	335	14.87	7.08	333	-2.25*
Para. Meaning	SC Approach							
	BR	10.23	6.89	73	11.17	7.02	63	-0.78
	PV	9.72	6.54	86	10.98	6.38	85	-1.27
	Total	9.95	6.71	159	11.06	6.66	148	-1.45
	LE Approach							
	LE	11.45	8.84	55	11.90	7.29	68	-0.30
	LE-AV	9.14	7.02	76	10.51	6.31	68	-1.22
	Total	10.11	7.92	131	11.20	6.85	136	-1.20
	Pilot	10.77	7.31	43	14.40	8.50	48	-2.16*
	All Methods	10.12	7.29	333	11.60	7.12	332	-2.65**
Vocabulary	SC Approach							
	BR	14.90	4.15	73	14.00	5.40	63	1.07
	PV	14.93	5.05	88	14.59	4.32	85	0.47
	Total	14.92	4.66	161	14.34	4.82	148	1.07
	LE Approach							
	LE	13.96	3.72	55	13.99	4.61	68	-0.04
	LE-AV	14.32	5.07	78	14.99	5.19	69	-0.78
	Total	14.17	4.56	133	14.49	4.94	137	-0.55
	Pilot	13.37	4.86	43	15.75	4.90	48	-2.30*
	All Methods	14.43	4.68	337	14.60	4.91	333	-0.46
Spelling	SC Approach							
	BR	6.55	5.21	73	7.65	5.35	63	-1.20
	PV	6.24	5.66	88	7.72	5.33	85	-1.76
	Total	6.38	5.46	161	7.69	5.34	148	-2.13*
	LE Approach							
	LE	5.24	5.39	55	6.82	5.36	68	-1.61
	LE-AV	4.91	5.86	78	6.35	5.73	68	-1.49
	Total	5.05	5.67	133	6.58	5.55	136	-2.23*
	Pilot	6.84	7.16	43	11.77	6.77	48	-3.33**
	All Methods	5.91	5.83	337	7.82	5.90	332	-4.22**
Word Study	SC Approach							
	BR	24.64	6.91	72	26.27	8.97	63	-1.16
	PV	26.57	8.95	89	29.66	7.99	87	-2.40*
	Total	25.71	8.16	161	28.24	8.58	150	-2.65**
	LE Approach							
	LE	23.73	6.59	55	26.60	7.45	68	-2.25*
	LE-AV	24.72	9.82	78	25.78	8.26	69	-0.71
	Total	24.31	8.65	133	26.19	7.88	137	-1.86
	Pilot	28.37	10.17	43	34.45	9.11	47	-2.94**
	All Methods	25.50	8.73	337	28.27	8.80	334	-4.10**

* P<.05
** P<.01

Table 8.25

Grade Equivalents of Raw Score Stanford Posttest Means for Boys and Girls, Replication 1

Method and Approach	Word Reading		Para. Meaning		Vocabulary		Spelling		Word St. Skills	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
SC Approach										
BR	1.4	1.5	1.5	1.5	1.5	1.4	1.6	1.6	1.4	1.4
PV	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.4	1.5
Total	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.6	1.4	1.5
LE Approach										
LE	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.6	1.4	1.4
LE-AV	1.4	1.4	1.4	1.5	1.4	1.5	1.4	1.6	1.4	1.4
Total	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.6	1.4	1.4
Pilot	1.5	1.7	1.5	1.6	1.4	1.5	1.6	1.9	1.5	1.8
All Methods	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.7	1.4	1.5

Table 8.26

Raw Score MAT Results for Boys and Girls, Replication 2

Subtests	Method and Approach	Boys			Girls			t
		Mean	S.D.	N	Mean	S.D.	N	
Word Knowledge	SC Approach							
	BR	17.02	6.58	43	21.57	7.70	28	-2.53*
	PV	18.36	7.92	39	18.43	5.53	44	-0.05
	Total	17.66	7.28	82	19.65	6.64	72	-1.76
	LE Approach							
	LE	16.82	8.50	33	20.27	6.80	51	-1.93
	LE-AV	16.44	8.56	41	15.20	6.87	46	0.73
	Total	16.61	8.54	74	17.87	7.29	97	-1.01
	Pilot	18.40	8.31	35	22.78	6.50	37	-2.45*
	All Methods	17.39	8.01	191	19.37	7.16	206	-2.58*
Word Discrim.	SC Approach							
	BR	20.56	8.85	43	26.00	9.31	28	-2.41*
	PV	24.00	8.42	37	25.34	6.54	44	-0.78
	Total	22.15	8.82	80	25.60	7.74	72	-2.55*
	LE Approach							
	LE	19.86	8.99	34	24.86	7.29	50	-2.66**
	LE-AV	20.18	8.82	40	20.33	7.83	46	-0.08
	Total	20.03	8.90	74	22.69	7.89	96	-2.02*
	Pilot	22.80	9.88	35	29.67	5.79	36	-3.51**
	All Methods	21.44	9.13	189	24.95	7.92	204	-4.05**
Reading	SC Approach							
	BR	22.07	9.44	43	31.36	10.62	28	-3.64**
	PV	24.13	10.85	39	26.11	9.48	44	-0.87
	Total	23.05	10.43	82	28.15	10.26	72	-3.03**
	LE Approach							
	LE	20.91	10.55	33	27.06	9.09	51	-2.72**
	LE-AV	21.54	10.29	41	21.50	10.36	46	0.02
	Total	21.26	10.41	74	24.42	10.10	97	-1.98*
	Pilot	22.29	11.73	35	30.46	10.50	37	-3.06**
	All Methods	22.22	10.70	191	26.81	10.50	206	-4.30**
Spelling	SC Approach							
	BR	14.60	9.41	42	20.68	8.81	28	-2.71**
	PV	16.70	9.65	37	19.18	6.84	44	-1.29
	Total	15.58	9.58	79	19.76	7.70	72	-2.95**
	LE Approach							
	LE	14.36	9.81	33	19.56	8.55	50	-2.45*
	LE-AV	14.05	9.10	40	16.24	8.32	46	-1.14
	Total	14.19	9.43	73	17.97	8.60	96	-2.66**
	Pilot	15.57	10.80	35	24.14	6.70	36	-4.09**
	All Methods	15.04	9.79	187	19.74	8.31	204	-5.08**

* P<.05

** P<.01

Table 8.27

Grade Equivalents of MAT Raw Score Means for Boys and Girls, Replication 2

Method and Approach	Word Knowledge		Word Discrimin.		Reading		Spelling	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
SC Approach								
BR	2.4	2.9	2.4	2.8	2.4	2.9	2.3	3.0
PV	2.5	2.5	2.7	2.7	2.6	2.7	2.5	2.7
Total	2.5	2.7	2.5	2.8	2.5	2.8	2.4	2.9
LE Approach								
LE	2.4	2.7	2.3	2.7	2.3	2.7	2.3	2.9
LE-AV	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.4
Total	2.4	2.5	2.3	2.6	2.3	2.6	2.3	2.6
Pilot	2.5	3.0	2.6	3.5	2.4	2.9	2.4	3.6
All Methods	2.4	2.6	2.4	2.7	2.4	2.7	2.3	2.9

Table 8.28

Raw Score Metropolitan Pretest Results for Children with and without Full Kindergarten Experience, Replication 2

Method and Approach	Mean N	Word Meaning		t	Listening		t	Matching		t	Alphabet		t
		Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.	
SC Approach													
BR													
with	41	6.89	2.31		9.46	2.12		5.86	2.62		7.95	3.39	
without	21	7.62	2.15		8.67	2.59		4.71	2.69		5.86	3.04	
PV													
with	58	5.88	2.38		8.48	2.63		5.57	2.82		8.05	4.14	
without	11	5.27	2.41		7.46	2.10		3.00	2.49		2.46	1.62	
Total[a]													
with	102	6.31	2.40		8.90	2.48		5.69	2.74		8.01	3.84	
without	32	6.81	2.50	-0.99	8.25	2.50	1.27	4.12	2.75	2.79*	4.69	3.10	4.91**
LE Approach													
LE													
with	71	6.42	2.63		8.49	2.10		4.89	2.71		8.83	4.40	
without	5	6.00	2.53		8.40	1.36		2.80	3.06		8.20	4.79	
LE-AV													
with	56	5.71	2.30		8.77	2.30		4.59	2.74		5.91	4.18	
without	19	4.37	1.60		7.21	2.52		3.84	2.46		5.21	3.49	
Total[a]													
with	127	5.11	2.52		8.61	2.20		4.76	2.73		7.54	4.54	
without	24	4.71	1.95	3.02**	7.46	2.38	2.16*	3.62	2.63	1.90	5.83	3.99	1.85
All Methods[a]													
with	229	6.20	2.47		8.74	2.33		5.17	2.78		7.75	4.25	
without	56	5.91	2.51	0.78	7.91	2.48	2.27*	3.91	2.71	3.09**	5.18	3.55	4.64**

[a] t tests were computed only for the two Approaches and Total, due to the small N's for some methods

* P<.05

** P<.01

Table 8.29

Raw Score Stanford Posttest Results for Children with and without Full Kindergarten Experience, Replication 2

Method and Approach	Mean N	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t
SC Approach																
BR																
with	44	13.30	5.07		11.36	6.04		15.39	4.41		8.52	4.30		26.75	6.14	
without	20	12.90	10.04		8.20	4.30		13.55	4.38		3.70	5.05		22.53	8.96	
PV																
with	58	14.43	5.97		10.93	6.36		14.90	4.75		8.45	5.46		29.33	8.84	
without	11	10.73	4.05		7.64	5.58		13.09	3.58		4.00	3.04		24.91	5.52	
Total[a]																
with	102	13.94	5.63	1.10	11.19	6.23	2.97**	15.11	4.61	1.95	8.48	4.99	4.91**	28.22	7.89	2.88**
without	31	12.13	8.48		8.00	4.80		13.39	4.12		3.81	4.45		23.40	7.96	
LE Approach																
LE																
with	72	14.51	5.91		11.53	7.31		13.86	3.35		6.38	5.31		25.72	6.99	
without	5	16.20	8.84		14.40	6.31		12.40	2.87		9.40	7.55		25.00	8.41	
LE-AV																
with	56	12.50	5.96		9.82	7.40		14.44	4.98		5.55	6.21		25.09	9.01	
without	19	8.44	1.92		8.33	3.62		13.74	3.75		3.32	3.28		22.16	5.40	
Total[a]																
with	128	13.63	6.02	2.72	10.78	7.40	0.90	14.12	4.16	0.78	6.02	5.74	1.21	25.44	7.95	1.82
without	24	10.13	5.49		9.65	5.02		13.46	3.63		4.58	5.15		22.75	6.26	
All Methods[a]																
with	230	13.77	5.85	2.29*	10.93	6.91	2.72**	14.55	4.39	1.87	7.11	5.56	3.98**	26.67	8.05	3.15**
without	55	11.28	7.42		8.70	4.96		13.42	3.91		4.14	4.78		23.11	7.26	

[a] t tests were computed only for the two Approaches and Total, due to the small N's for some methods

* P<.05

** P<.01

Table 8.30

Grade Equivalents of Raw Score Stanford Posttest Means for Children with and without Full Kindergarten Experience, Replication 2

Method and Approach	Word Read.	Para. Mean.	Vocab.	Spell.	Wd. St. Skills
SC Approach					
BR					
with	1.4	1.5	1.5	1.7	1.4
without	1.4	1.4	1.4	1.3	1.3
PV					
with	1.5	1.5	1.5	1.6	1.5
without	1.3	1.4	1.4	1.3	1.4
Total					
with	1.5	1.5	1.5	1.6	1.5
without	1.4	1.4	1.4	1.3	1.3
LE Approach					
LE					
with	1.5	1.5	1.4	1.5	1.4
without	1.6	1.6	1.3	1.7	1.4
LE-AV					
with	1.4	1.5	1.4	1.4	1.4
without	1.1	1.4	1.4	1.2	1.3
Total					
with	1.5	1.5	1.4	1.5	1.4
without	1.3	1.5	1.4	1.4	1.3
All Methods					
with	1.5	1.5	1.5	1.6	1.4
without	1.3	1.4	1.4	1.3	1.3

Table 8.31

Raw Score MAT Posttest Results for Children with and without Full Kindergarten Experience, Replication 2

Method and Approach	Mean N	Word Knowledge			Word Discrimination			Reading			Spelling		
		Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t	Mean	S.D.	t
SC Approach													
BR													
with	44	20.41	5.20		25.59	7.43		26.80	9.49		19.21	7.62	
without	20	14.10	8.82		15.20	9.42		20.90	11.39		11.40	11.47	
PV													
with	57	19.03	6.63		25.20	6.90		26.43	10.35		18.79	7.37	
without	11	16.00	4.55		21.36	6.93		19.64	5.82		13.18	8.20	
Total^a													
with	101	19.63	6.09	3.20**	25.37	7.14	4.41**	26.59	9.99	3.00	18.97	7.48	3.00**
without	31	14.77	7.64		17.39	9.11		20.45	9.80		12.03	10.46	
LE Approach													
LE													
with	71	19.34	7.64		22.96	8.33		24.68	10.04		17.44	9.33	
without	5	17.60	5.50		21.60	8.40		23.60	8.45		16.20	9.78	
LE-AV													
with	54	15.64	7.42		19.91	8.03		21.47	10.43		15.00	8.93	
without	19	12.90	6.04		18.32	6.76		19.53	8.50		13.47	6.98	
Total^a													
with	125	17.72	7.76	2.61**	21.64	8.34	1.56	23.28	10.34	1.43	16.38	9.24	1.29
without	24	13.88	6.23		19.00	7.26		20.38	8.65		14.04	7.73	
All Methods^a													
with	226	18.58	7.13	3.92**	23.30	8.04	4.13**	24.76	10.31	3.01**	17.53	8.60	3.29**
without	55	14.38	7.07		18.09	8.39		20.42	9.32		12.91	9.42	

[a] t tests were computed only for the two Approaches and Total, due to the small N's for some methods

* P<.05

** P<.01

Table 8.32

Grade Equivalents of Raw Score MAT Posttest Means for Children with and without Full Kindergarten Experience, Replication 2

Method and Approach	Word Knowledge	Word Discrim.	Reading	Spelling
SC Approach				
BR				
with	2.7	2.8	2.7	2.7
without	2.2	1.9	2.3	2.1
PV				
with	2.6	2.7	2.7	2.7
without	2.4	2.4	2.3	2.2
Total				
with	2.7	2.7	2.7	2.7
without	2.3	2.1	2.3	2.3
LE Approach				
LE				
with	2.7	2.6	2.6	2.5
without	2.5	2.5	2.6	2.4
LE-AV				
with	2.4	2.3	2.3	2.5
without	2.1	2.1	2.3	2.4
Total				
with	2.5	2.5	2.5	2.3
without	2.2	2.2	2.3	2.2
All Methods				
with	2.6	2.6	2.6	2.6
without	2.2	2.1	2.3	2.2

Table 8.33

Correlations of 60 Variables with MAT Adjusted Class Means, Replication 2

VARIABLE		Adjusted by Pretests				Adjusted by Posttests			
		WK[a]	WD	Rdg	Sp	WK	WD	Rdg	Sp
1. Child's Chronological Age		0.507**	0.471*	0.253	0.483*	0.426*	0.441*	0.136	0.426*
2. Median Years Education in Community		0.422*	0.574**	0.411*	0.467*	0.231	0.515**	0.279	0.341
3. Median Income in Community		0.315	0.362	0.314	0.341	0.333	0.358	0.252	0.320
4. Grade 1 Pupil Absence		-0.433*	-0.322	-0.165	-0.368	-0.427*	-0.285	-0.038	-0.322
5. Grade 1 Teacher Competence		0.312	0.177	0.095	0.271	0.175	0.078	-0.052	0.166
6. Grade 2 10/66 MAT Word Knowledge		0.788**	0.852**	0.827**	0.832**	0.647**	0.785**	0.713**	0.701**
7. Grade 2 Pupil Absence		-0.743**	-0.764**	-0.546**	-0.713**	-0.702**	-0.735**	-0.436*	-0.626**
8. Pupil San Diego		0.448*	0.437*	0.514**	0.492*	0.406*	0.451*	0.516**	0.509**
9. No. Books Read Completely		0.280	0.373	0.278	0.418*	0.208	0.371	0.223	0.413*
10. No. Books Read Partially		0.109	0.160	-0.037	0.083	0.128	0.164	-0.067	0.065
11. Eagerness to Read		0.154	0.196	0.191	0.235	0.170	0.196	0.200	0.242
12. Maturity of Choices		0.434*	0.486*	0.395	0.491*	0.408*	0.458*	0.319	0.430*
13. 10/66 MAT Reading		0.580**	0.634**	0.519**	0.621**	0.409*	0.548**	0.381	0.489*
14. Gilmore Accuracy		0.653**	0.803**	0.748**	0.742**	0.485*	0.746**	0.631**	0.615**
15. 4/67 MAT Word Knowledge	Adjusted by Grade 1 Pretests	1.000	0.852**	0.823**	0.888**	0.918**	0.772**	0.655**	0.764**
16. 4/67 MAT Word Discrimination		0.852**	1.000	0.833**	0.939**	0.703**	0.964**	0.702**	0.829**
17. 4/67 MAT Reading		0.823**	0.833**	1.000	0.823**	0.721**	0.789**	0.930**	0.724**
18. 4/67 MAT Spelling		0.888**	0.939**	0.823**	1.000	0.789**	0.914**	0.710**	0.938**
19. 4/67 MAT Word Knowledge	Adjusted by Grade 1 Posttests	0.918**	0.703**	0.721**	0.789**	1.000	0.699**	0.661**	0.780**
20. 4/67 MAT Word Discrimination		0.772**	0.964**	0.789**	0.914**	0.699**	1.000	0.747**	0.893**
21. 4/67 MAT Reading		0.655**	0.702**	0.930**	0.710**	0.661**	0.747**	1.000	0.728**
22. 4/67 MAT Spelling		0.764**	0.829**	0.724**	0.938**	0.780**	0.893**	0.728	1.000
23. Gilmore Rate Adjusted Score		0.299	0.278	0.341	0.308	0.312	0.319	0.362	0.346
24. Gates Adjusted Score		0.745**	0.811**	0.769**	0.794**	0.584**	0.770**	0.662**	0.702**
25. Fry Adjusted Score		0.727**	0.802**	0.748**	0.792**	0.584**	0.771**	0.650**	0.719**
26. Grade 2 Teacher Competence		-0.062	0.143	0.099	0.157	-0.176	0.122	0.083	0.131
27. Teacher Age		0.116	0.105	0.207	0.039	0.224	0.174	0.298	0.099
28. Total No. Years Teaching Experience		0.229	0.193	0.165	0.133	0.166	0.161	0.113	0.069
29. No. Years Grade 2 Teaching Experience		0.196	0.100	0.168	0.135	0.163	0.040	0.096	0.079
30. Class Size as of 4/10/67		-0.178	0.025	0.064	0.021	-0.194	0.101	0.206	0.099

[a] WK = Word Knowledge Rdg = Reading
WD = Word Discrimination Sp = Spelling

Table 8.33 (cont.)

VARIABLE	Adjusted by Pretests				Adjusted by Posttests			
	WK	WD	Rdg	Sp	WK	WD	Rdg	Sp
31. Teacher Absence	0.128	-0.055	-0.114	-0.025	0.075	-0.135	-0.244	-0.111
32. Teacher Pre S-D: Basic	0.190	0.191	0.103	0.209	0.189	0.168	0.055	0.176
33. Teacher Pre S-D: Indiv.	0.242	0.097	0.028	0.293	0.203	0.044	-0.073	0.280
34. Teacher Pre S-D: LE	0.366	0.124	0.191	0.329	0.377	0.095	0.151	0.343
35. Teacher Post S-D: Basic	0.061	0.029	0.012	0.082	0.181	0.076	0.049	0.156
36. Teacher Post S-D: Indiv.	0.370	0.229	0.211	0.423	0.329	0.197	0.128	0.415*
37. Teacher Post S-D: LE	0.314	0.138	0.200	0.358	0.257	0.080	0.117	0.342
38. CRAFT Teacher Attitude	0.499*	0.430*	0.413*	0.577**	0.568**	0.465*	0.412*	0.638**
39. Teacher-Pupil Similarity	-0.127	-0.107	-0.219	0.070	-0.063	-0.094	-0.236	0.144
40. Per cent CRAFT Children in Class	0.177	0.135	0.089	0.256	0.181	0.159	0.102	0.315
41. Mean Time Reading Activities	-0.087	-0.287	-0.316	-0.173	0.049	-0.300	-0.310	-0.142
42. Mean Time Supportive Activities	0.085	0.022	0.034	0.061	0.097	0.061	0.095	0.123
43. Mean Time All Activities	0.038	-0.136	-0.140	-0.033	0.125	-0.104	-0.075	0.046
44. Logs: Basal Reader Time	0.000	0.077	0.136	-0.015	0.084	0.091	0.167	-0.030
45. Logs: Experience Chart	0.112	-0.067	-0.086	0.097	0.207	-0.029	-0.033	0.186
46. Logs: Individualized Reading	-0.114	-0.168	-0.267	-0.106	-0.230	-0.213	-0.328	-0.131
47. Logs: Sight Words	0.100	-0.144	0.030	0.025	0.182	-0.174	0.015	0.048
48. Logs: Phonic Activity	0.013	0.160	-0.058	0.084	-0.135	0.117	-0.130	0.006
49. Logs: Other Reading Activity	-0.091	-0.377	-0.271	-0.219	0.117	-0.343	-0.217	-0.111
50. Logs: Listening to Stories	0.013	0.050	0.071	0.007	0.040	0.119	0.183	0.081
51. Logs: Listening to Poetry	0.101	-0.023	0.147	0.046	0.189	0.065	0.286	0.181
52. Logs: Discussion	-0.041	0.030	-0.031	-0.029	-0.108	0.036	-0.004	-0.033
53. Logs: Writing	0.009	-0.097	-0.103	-0.146	0.055	-0.072	-0.070	-0.112
54. Logs: Audio-Visual Activity	-0.013	0.147	0.047	0.139	-0.195	0.089	-0.045	0.062
55. Logs: AV with Discussion	-0.060	-0.000	-0.098	0.044	-0.215	-0.052	-0.184	-0.010
56. Logs: Dramatization	0.173	0.069	0.070	0.126	0.277	0.154	0.191	0.236
57. Logs: Art Work with Reading	0.230	0.037	0.093	0.138	0.324	0.074	0.148	0.199
58. Logs: Other Language Arts	0.111	-0.047	0.109	0.047	0.280	0.027	0.221	0.168
59. Logs: Social Studies	0.182	0.295	0.430*	0.206	0.214	0.337	0.495*	0.213
60. Logs: Science	0.256	0.347	0.479*	0.275	0.303	0.397*	0.550**	0.291

*P < .05
**P < .01

Table 8.34

Teacher Competence Rating for Replication 2

Method and Approach	N	Mean	Median	S.D.	Range
SC Approach					
BR	5	3.50	3.50	0.41	3 - 4
PV	5	4.10	4.50	0.86	2 - 5
Total	10	3.77	4.00	0.72	2 - 5
LE Approach					
LE	5	3.70	4.00	0.87	2 - 5
LE-AV	5	4.20	4.00	0.75	3 - 5
Total	10	3.95	4.00	0.85	2 - 5
Pilot	4	3.62	3.75	1.08	2 - 5
All Methods	24	3.82	4.00	0.85	2 - 5

Table 8.35

Comparisons of the Three Scales of the San Diego Teacher Inventory of Approaches to the Teaching of Reading, Replication 2

Method and Approach	N	a) Basic				b) Individualized				c) Language-Experience			
				ab				bc				ac	
		Mean	S.D.	r	t	Mean	S.D.	r	t	Mean	S.D.	r	t
SC Approach													
BR	6	44.17	3.81	0.38	1.70	39.00	8.02	0.83	2.98*	32.00	10.26	0.35	3.10*
PV	5	45.00	1.67	-0.76	4.36**	32.60	5.00	0.91	4.48**	25.60	7.36	-0.58	5.14**
Total	11	44.54	3.06	0.09	3.56**	36.09	7.53	0.86	4.68**	29.09	9.61	0.10	5.23**
LE Approach													
LE	5	35.60	2.73	0.34	-3.91**	41.80	3.37	-0.33	-0.30	41.00	3.95	-0.76	-1.92
LE-AV	5	33.20	8.70	-0.34	-2.30	43.80	3.31	0.13	-0.49	44.80	3.54	-0.58	-2.33*
Total	10	34.40	6.56	-0.20	-3.31*	42.80	3.49	0.03	-0.06	42.90	4.20	-0.55	-2.82*
Pilot	4	34.00	5.74	-0.50	-3.09*	47.50	4.33	0.83	5.77**	40.50	3.84	-0.70	-1.47
All Methods	25	38.80	7.25	-0.45	-0.73	40.60	7.16	0.79	3.50**	36.44	9.65	-0.58	0.78

* P<.05

** P<.01

Table 8.36

Teachers' Attitude toward CRAFT Method, Replication 2

Method and Approach	N	Mean	S.D.	t - Value					
				Skills-Centered			Language-Experience		
				BR	PV	Total	LE	LE-AV	Total
SC Approach									
BR	6	44.33	4.42		.86		1.06	2.59*	
PV	5	41.60	4.92				0.00	1.34	
Total	11	43.09	4.86						1.74
LE Approach									
LE	5	41.60	3.26					1.70	
LE-AV	5	37.60	3.38						
Total	10	39.60	3.88						
Pilot	4	46.00	2.34	.70	1.57	1.42	2.08	3.88**	3.42**
All Methods	25	42.16	4.76						

* P<.05

** P<.01

Table 8.37

Reading, Supportive and Total Time for Replication 2 Teachers

Method and Approach	Reading Time		Supportive Time		Total Time	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
SC Approach						
BR	103.70	21.61	61.34	16.48	165.04	25.53
PV	99.43	12.01	53.50	9.87	152.94	19.66
Total	101.76	18.02	57.78	14.41	159.54	23.82
LE Approach						
LE	99.57	11.07	102.61	17.02	202.18	19.46
LE-AV	94.54	17.57	86.94	19.83	181.47	2.49
Total	97.06	14.90	94.78	20.07	191.82	17.31
Pilot	93.20	9.62	102.40	30.61	195.60	29.77
All Methods	98.51	16.02	79.72	28.06	178.22	28.06

Table 8.38

Mean Time in Minutes per Day on Reading and Supportive Activities, Replication 2

Variable	SC Approach						LE Approach						Pilot		All Methods	
	BR		PV		Total		LE		LE-AV		Total					
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Basal Reader	51.95	8.24	44.12	3.51	48.39	7.61	4.52	7.31	1.96	2.84	3.24	5.69	0.00	0.00	22.59	24.09
Experience Chart	6.01	5.13	6.03	3.06	6.02	4.31	21.13	6.16	14.69	10.34	17.91	9.10	16.10	2.54	12.39	8.36
Individualized Reading	6.48	4.97	5.33	4.17	5.96	4.66	24.46	9.42	34.34	15.82	29.40	13.92	36.90	10.66	20.29	16.24
Sight Words	12.22	2.89	7.75	3.20	10.19	3.76	11.83	4.72	13.70	1.96	12.76	3.73	11.10	4.33	11.36	3.78
Phonic Activity	13.44	4.87	29.90	6.85	20.92	10.07	13.13	2.57	16.38	1.65	14.76	2.70	24.65	4.98	19.05	7.99
Other Reading Activities	13.60	7.87	6.30	7.15	10.28	8.38	24.50	6.95	13.46	6.40	18.98	8.67	4.45	4.82	12.83	9.40
Listening to Stories	8.96	2.91	7.08	3.87	8.10	3.51	12.61	2.71	9.13	2.26	10.87	3.04	10.65	2.95	9.62	3.31
Listening to Poetry	2.29	2.35	2.56	1.34	2.41	1.96	5.29	2.19	2.52	1.02	3.90	2.20	5.30	1.44	3.47	2.15
Discussion	8.70	3.62	12.88	6.28	10.60	5.42	14.47	5.49	10.89	3.37	12.68	4.89	2.50	13.39	13.02	7.35
Writing	14.18	3.01	13.92	6.91	14.06	5.16	22.73	4.17	16.51	6.59	19.62	6.33	20.35	5.14	17.29	5.99
Audio-Visual Activity	3.38	4.08	2.29	1.80	2.88	3.29	1.65	2.28	11.54	4.68	6.60	6.16	8.90	4.64	5.33	5.20
AV with Discussion	1.15	2.81	2.97	2.54	1.98	2.84	3.06	2.11	14.06	7.73	8.56	7.90	13.20	6.68	6.41	7.11
Dramatization	4.63	4.49	3.56	2.94	4.14	3.90	6.77	3.19	3.83	1.92	5.30	3.02	8.10	5.29	5.24	3.79
Art Work with Reading	11.65	4.80	5.60	5.22	8.90	5.83	14.64	4.09	8.36	4.71	11.50	5.41	12.40	3.87	10.50	5.31
Other Language Arts	6.42	4.23	2.64	2.14	4.70	3.92	21.38	9.49	10.10	3.11	15.74	9.04	3.00	1.21	8.84	8.34
Social Studies	15.10	11.14	16.86	8.78	15.90	10.17	-- --	- --	-- --	- --	-- --	- --	3.45	4.36	7.55	10.00
Science	12.91	11.14	10.56	4.88	11.84	8.94	-- --	- --	-- --	- --	-- --	- --	3.50	3.48	5.77	7.97

APPENDIX B

Forms

The City University of New York
535 East Eightieth Street
New York, New York 10021

DIVISION OF TEACHER EDUCATION

February 1967

To: CRAFT Teacher, Grade 2

From: Dr. Lawrence Gold, Coordinator of CRAFT Project

Re: Instructions for Administration of Writing Sample Story

General Directions

No attempt should be made to alter the usual displays in the classroom.

Distribute to the pupils the writing paper and pencils normally used for writing activities. The pupil's name, date and teacher's name should go at the top of each pupil's paper.

Specific Directions

Read the following to the pupils:

"I am going to read a story about a frog named Hoppy. I want you to listen closely for I am going to leave out the ending. When I have finished reading, I want you to take your pencil and tell how you think the story should end. You will need to listen very carefully because I can't help you write this story. If you can't spell a word, just write it the way it sounds. Are there any questions?"

If the question arises about asking for additional paper, tell the children that they may use as much paper as necessary.

"Ready ..... Listen ..... Here is the story."

Read the story on the attached sheet to the pupils.

Time Limit

Begin timing the pupils when they begin to write. Allow twenty minutes for writing. At the end of twenty minutes, say "Please stop writing."

It is recommended that the following system be used for recording time:

Example:		
	Time Began	9:10
	Writing Period	:20
	Stop Writing	9:30

Do not assist pupils, except for giving general supervision and encouragement. If pupils request aid in spelling, tell them to spell as best they can.

If pupils normally use a simplified dictionary, write from display charts or flash cards, or use a speller, such practices may be allowed.

Please keep the writing samples until they are collected by a staff member from our office. Thank you for your cooperation.

The City University of New York
535 East Eightieth Street
New York, New York 10021

DIVISION OF TEACHER EDUCATION

Dear CRAFT Teacher:

As you may recall, it was agreed that the Daily Log Form would be recorded by CRAFT teachers for certain weeks. A total of twenty-five forms will be requested for the present year, which is a substantial reduction in comparison to last year.

This communication will serve as a reminder that the next log reporting period is:

As soon as these forms have been completed, they should be submitted to our office. An envelope for this purpose has been sent to one teacher in each school. We are requesting this teacher, whose name is circled on the attached sheet, to forward all the logs to us.

For your future planning, a list of the reporting periods has been indicated below.

In our analysis of the data for a previous CRAFT year, the information provided by the logs proved to be of considerable value. For this reason, we are making every effort to have the logs submitted as requested.

Thank you for your continued cooperation in this matter.

Sincerely,

Lawrence Gold
Coordinator of CRAFT Project

LG:ssm
Reporting Periods: October 17-21, 1966, November 14-18, 1966, December 12-16, 1966, January 16-20, 1967, February 6 - 10, 1967.

The City University of New York
Division of Teacher Education

OFFICE OF RESEARCH AND EVALUATION

CRAFT Project

Daily Log Form

Teacher____________________

Class_____ School________ Date_____

FOR OFFICE USE ONLY

☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9

IMPORTANT:
USE A SOFT LEAD PENCIL ONLY.
(No ball point or other pen.)

Reading Activities	TIME IN MIN. WRITE IN	DATE (block in :)									
		SEPT	OCT	NOV	DEC.	JAN	FEB	MAR	APRIL	MAY	JUNE
		M		T		W	T		F		
						TENS	UNITS				
Basal Reader Activity		0	1	2	3	4	5	6	7	8	9
Experience Chart		0	1	2	3	4	5	6	7	8	9
Individualized Reading		0	1	2	3	4	5	6	7	8	9
Sight Word Drill		0	1	2	3	4	5	6	7	8	9
Phonic Activity		0	1	2	3	4	5	6	7	8	9
Other		0	1	2	3	4	5	6	7	8	9

Supportive Activities											
Listening to stories		0	1	2	3	4	5	6	7	8	9
Listening to poetry		0	1	2	3	4	5	6	7	8	9
Discussion		0	1	2	3	4	5	6	7	8	9
Writing		0	1	2	3	4	5	6	7	8	9
Audio-Visual activity		0	1	2	3	4	5	6	7	8	9
A-V with intermittent discussion		0	1	2	3	4	5	6	7	8	9
Dramatization		0	1	2	3	4	5	6	7	8	9
Art work with reading		0	1	2	3	4	5	6	7	8	9
Other		0	1	2	3	4	5	6	7	8	9

For Basal Reader and Phonovisual classes, which have separate periods for Social Studies and Science:

Social Studies		0	1	2	3	4	5	6	7	8	9
Science		0	1	2	3	4	5	6	7	8	9

The City University of New York
Division of Teacher Education

Office of Research and Evaluation

CRAFT Project

RATING SCALE
of
TEACHER'S ATTITUDE TOWARDS CRAFT METHOD

Teacher's Name ____________________ For CRAFT Year 1965-66

School ______________ Grade Level __________ Method ________________

Please respond to all statements with complete frankness. Replies will be kept strictly confidential for use by CRAFT staff only.

Directions

Place a check next to the number which best reflects your personal attitude for each statement.

Sample

How important do you think kindergarten is for urban youth?

____ 1) very unimportant
____ 2) unimportant
____ 3) undecided
__√__ 4) important
____ 5) very important

----

1. How effective was your CRAFT method (basal; phonovisual; language-experience; audio-visual; or pilot-combination) for the typical child in your class last year?

____ 1) definitely not effective
____ 2) probably not effective
____ 3) undecided
____ 4) probably effective
____ 5) definitely effective

2. If you taught the same grade and type of class next year, as you did last year, how much interest would you have in using the same CRAFT method?

____ 1) definitely not interestec
____ 2) probably not interested
____ 3) undecided
____ 4) probably interested
____ 5) definitely interested

3. If you had administrative authority, to what extent would you recommend the use of your CRAFT method to other teachers in the same grade?

_____ 1) strongly not recommend
_____ 2) probably not recommend
_____ 3) undecided
_____ 4) probably recommend
_____ 5) strongly recommend

4. What degree of interest did your pupils show towards the various activities which comprised the CRAFT method you used last year?

_____ 1) definitely no interest
_____ 2) probably no interest
_____ 3) undecided
_____ 4) probably interested
_____ 5) definitely interested

5. If a school system had to select a single instructional method for the teaching of reading, how much support would you give to the selection of the CRAFT method you used last year?

_____ 1) definitely no support
_____ 2) probably no support
_____ 3) undecided
_____ 4) probably some support
_____ 5) definite support

6. It has been suggested that urban youth will learn to read best using material with which they can identify. How would you rate the identification value of the material you used in the CRAFT method last year?

_____ 1) definitely no identification value
_____ 2) probably no identification value
_____ 3) undecided
_____ 4) probably some identification value
_____ 5) definitely had identification value

7. An efficient instructional method may be defined as one which permits the maximum of pupil learning with the minimum of instructional effort. How would you rate the efficiency of the CRAFT method you used last year?

_____ 1) definitely not efficient
_____ 2) probably not efficient
_____ 3) undecided
_____ 4) probably efficient
_____ 5) definitely efficient

8. It has been suggested that some instructional methods have inherent appeal for youngsters, thus promoting motivation and learning. How would you rate the CRAFT method you used last year for its appeal to the pupils?

____ 1) inferior appeal
____ 2) below average appeal
____ 3) undecided
____ 4) above average appeal
____ 5) superior appeal

9. If you became a reading consultant in an urban school district, to what extent would you encourage the use of the CRAFT method you taught last year?

____ 1) definitely not encourage its use
____ 2) probably not encourage its use
____ 3) undecided
____ 4) probably encourage its use
____ 5) definitely encourage its use

10. To what extent would you recommend your CRAFT method of last year to the typical teacher who has pupils of the same grade level?

____ 1) definitely not recommend
____ 2) probably not recommend
____ 3) undecided
____ 4) probably recommend
____ 5) definitely recommend

Please respond in your own words to each of the questions below:

1. What features of the CRAFT method did you like the most?

2. What features of the CRAFT method did you like the least?

Please use the other side if more space is needed.

The City University of New York
535 East Eightieth Street
New York, New York 10021

DIVISION OF TEACHER EDUCATION

January 17, 1967

Dear CRAFT Teacher:

You may recall that last year, for a period of 19 days, we asked that a record of independent reading activities be maintained for each child. This year we wish to have the same information for your present class and, in order to expedite the collection of this data, you need only return to us the sheets headed "Individual Reading Record." Our office staff will do the final tabulations.

The individual reading records sent to our office are to be maintained for only a specified period, from February 1 to March 1, inclusive. This is a total of 19 school days.

The pupil, with teacher assistance if necessary, will complete the "Individual Reading Record" for each book read in class. Books which are entirely "picture books" are not to be included, as we are only interested in noting those books which require actual reading ability. Do not include books which are normally used for instructional purposes, whether with the whole class or subgroups.

It is important to note that the number of pages in each book, as well as the number of pages which the pupils has read, must be recorded on the "Individual Reading Record." It is optional whether the pupil completes the "Comment" section, but certainly desirable.

Some CRAFT teachers are already keeping a similar record of independent reading activities. Duplicates of these records may be returned to our office, in place of the suggested forms, providing the same information, as a minimum, is entered. Please observe that we wish the records only for the period from February 1 through March 1, inclusive (19 school days).

We have included a limited number of blanks. Please plan with the other CRAFT teachers to reproduce, by "ditto" or some other process, as many blanks as needed. Kindly arrange to have all the completed individual reading records returned to our office soon after the first of March.

Dr. Harris and I wish to express our appreciation for the excellent attendance at our Teachers' Central Meeting held on January 16. Judging by the enthusiasm of our group, it was a most profitable session. Plans are already being made for our end-of-year gathering, which will occur during the middle of June. Until we see each other again as a group, happy CRAFTing.

Sincerely yours,

L Gold

Larry Gold
Coordinator of CRAFT Project

LG:ssm

Project Code Number ______________ Class Code No. __________

School ________________________ Date of Rating __________

Teacher ______________________

SECOND GRADE READING INTEREST SCALE

PUPILS		RATING	
Code No.	NAME	Eagerness to Read	Maturity of Choices

AN INVENTORY OF READING ATTITUDE

(Standardization Edition)

Name________________________________ Grade_______ Boy Girl
Last First Middle

School______________________ Teacher____________________

Date of Test__________________
Mo. Day Yr.

TO BOYS AND GIRLS:

This sheet has some questions about reading which can be answered YES or NO. Your answers will show what you usually think about reading. After each question is read to you, circle your answer.

INSTRUCTIONS TO PUPILS

Draw a circle around the word YES or NO, whichever shows your answer.

Sample A

Yes No Do you like to read?

If you like to read, you should have drawn a circle around the word YES in Sample A; if you do not like to read, you should have drawn a circle around the word NO.

Sample B

Yes No Do you read as well as you would like to?

If you read as well as you would like to, you should have drawn a circle around the word YES in Sample B; if not, you should have drawn a circle around the word NO.

Yes No 1. Do you like to read before you go to bed?

Yes No 2. Do you think that you are a poor reader?

Yes No 3. Are you interested in what other people read?

Yes No 4. Do you like to read when your mother and dad are reading?

Yes No 5. Is reading your favorite subject at school?

Yes No 6. If you could do anything you wanted to do, would reading be one of the things you would choose to do?

Yes No 7. Do you think that you are a good reader for your age?

Yes No 8. Do you like to read catalogues?

Yes No 9. Do you think that most things are more fun than reading?

Yes No 10. Do you like to read aloud for other children at school?

Yes No 11. Do you think reading recipes is fun?

Yes No 12. Do you like to tell stories?

Yes No 13. Do you like to read the newspaper?

Yes No 14. Do you like to read all kinds of books at school?

Yes No 15. Do you like to answer questions about things you have read?

Yes No 16. Do you think it is a waste of time to make rhymes with words?

Yes No 17. Do you like to talk about books you have read?

Yes No 18. Does reading make you feel good?

Yes No 19. Do you feel that reading time is the best part of the school day?

Yes No 20. Do you find it hard to write about what you have read?

Yes No 21. Would you like to have more books to read?

Yes No 22. Do you like to read hard books?

Yes No 23 Do you think that there are many beautiful words in poems?

Yes No 24. Do you like to act out stories that you have read in books?

Yes No 25. Do you like to take reading tests?

Supt. of Schools, Dept. of Educ.
San Diego County 2-61

The City University of New York
Division of Teacher Education

OFFICE OF RESEARCH AND EVALUATION

CRAFT WORD RECOGNITION TEST
Form I

Pupil Test Sheet

Demonstration:

one	so	boy	

* * *

Dick	ride	Sally	1
change	came	comes	2
this	then	the	3
looks	bike	like	4
dog	buy	good	5
tap	put	pit	6
don't	can't	won't	7
man	stem	must	8
there	here	her	9
black	brown	blue	10

BLS:ssm 9/20/65

Pupil's Name:______________________ School:__________

Date:__________ Teacher's Name ______________________

Variable __________

INSTRUCTIONS FOR RECORDING BEHAVIOR WITH OScAR R

Donald M. Medley and Lou Hicks Smith

Background

OScAR R (Observation Schedule and Record - Reading) was developed by this office in order to assist in the implementation of the First-Grade Reading Project (CRAFT). It has a two-fold purpose: (1) it should provide some record of the degree to which teachers in the experiment implement the variables assigned to them; (2) it should yield information about similarities and differences in the behaviors of teachers assigned the same method. If such behaviors affect the rate at which pupils learn to read, this information can be used in the analysis of the data to increase the precision of the methods comparisons.

The schedule has two sections, one printed on the front and the other on the back of a five-by-eight card. One side is called the "Static" section (OScAR Rs) and the other is called the "Dynamic" section (OScAR Rd). The Static section is designed to yield a description of the range and variety of activities and materials observed in the classroom, analogous to a still photograph. The Dynamic section, which focuses on the verbal behavior only, is designed to yield a running description of the pattern of teacher statements and of the verbal interchanges between teacher and pupils. The categories into which behaviors are coded on both sides are designed to involve only simple, non-evaluative discriminations which can be made by relatively unsophisticated observers after a brief period of training.

General Procedure

The basic unit of observation is a ten-minute period. During the first three minutes, behaviors are coded on the Static side. During the second seven minutes, behaviors are coded on the Dynamic side.

Visits are scheduled ahead of time, and teachers are requested to arrange their school days so that a language arts lesson will be scheduled while the observer is in the classroom.

At the appointed time the observer enters the room as unobtrusively as possible and takes a seat near the rear. He first fills in the sections at the right of the Static side of the card, beginning by indicating the date and the time in the spaces provided. (See attached copy of OScAR.) Next he checks in the box in the upper right corner any audio-visual materials being used, in the column headed "S" and the organization of the class into groups in the box immediately below. He then starts his stop watch, and for three minutes records the activities and materials he observes in the main body of the Static section. At the end of three minutes, he stops his watch, and indicates the audio-visual equipment then being used, and the organization of the class into groups. This time he makes his marks in the column headed "D". Then he turns the card over, starts his watch again, and for seven minutes tallies verbal behavior on the Dynamic side of the card. At the end of six minutes, he stops his watch and makes any appropriate notations in the box for "Remarks" (on the Static side). If observation is to continue, he begins all over with a new card.

This 10-minute "period" of observation (which is recorded on one card) constitutes the primary unit of observation, 9 minutes of which are recorded. Observers in the CRAFT Project are instructed to obtain three consecutive periods of observation per visit for use in the analysis of the experiment. They have also been asked, when possible, to obtain one extra period of observation during each visit for use in item analysis, preceding the analysis of the results of the experiment.

Although the instrument is designed primarily for use during lessons whose goal is the teaching of reading, observers are instructed to record any teacher behavior that occurs during a visit, with one exception. In case the teacher finishes a lesson while the stop watch is running, and begins a rest or snack period, the observer will continue to code whatever behaviors he observes until it is time to stop the watch. But he will not start the watch again until the end of the rest or snack period.

Detailed Procedure - Static Side

The eight small boxes at the upper right are used for identifying code numbers for this Office's First-Grade Reading Project.. The following information is coded: Observer, Visit Number, Time Period Within Visit, Visit Number Given by Observer, Variable, Consultant, School within District, Teacher within Variable. This section is completed before the observer enters the classroom.

Immediately below these boxes is a section in which use of the following audio-visual equipment is to be checked: Motion Picture Projector, Slide/Strip Projector, Tape Recorder, Phonograph, Overhead Projector, Camera. These items are checked only if such equipment is in use at the time when the block is checked. By choosing the "S" or the "D" column, the observer indicates whether the equipment was in use at the beginning of the Static or the Dynamic phase of the period.

Below the audio-visual block there appears a section which is used for recording the group structure of the classroom. A different row is used by the observer to record each discernable functional group which appears in the classroom at the beginning of each of the two phases (Dynamic and Static). The observer counts the number of children in each group he sees, and writes this number in one of the cells in Column S or D as the case may be. If only one group appears in the classroom (the entire class), the observer records the total number in the entire classroom in the top box. A check is made in the adjoining box (column headed "T") to indicate which group the teacher is with.

The blank box in the lower right-hand side, labelled "RMKS" is used to record brief summary comments about the activities occurring during the entire observation period, particularly anything unusual which might occur.

The main body of the Static side, which appears to the left of these small sections, consists of a two-way classification: what activities occur during the three-minute period and what materials are used in these activities?

Figures 1 and 2 are included to clarify the process by which the observer codes the behaviors and locates the cells in which they are to be recorded. The process is sequential in the sense that in order to code a behavior the observer must make a series of separate discriminations. The 20 activities are listed vertically, and the 18 categories of materials are arranged horizontally in a pattern designed to facilitate recording.

Materials The organization of materials can perhaps best be understood by a close examination of Figure 1.

If the activity observed is such that no materials are used (if, for example, the teacher is telling a story) the category "No Materials" is used.

If materials are involved, the first discrimination to be made occurs at Level 1 of Figure 1: between Books, Display Materials, and Hand-held Materials.

Under the general category Books there are two major subdivisions: Published Books and Homemade Books.

Published Books are divided into three types: Basal Readers, Workbooks, and Supplementary Books. Basal Readers include pre-primers, primers, etc. in whatever series the teacher uses. Workbooks are designed to be written in. Supplementary Books include any published books, such as story books, which are not used in the basal reader series being used. Readers from other series fall into this category.

Homemade Books include the pamphlet-like books prepared by the teacher or the pupil. Words or letters must appear on such booklets in order for this category to be checked. Illustrations may or may not appear.

Whether the booklet is teacher--or pupil--produced is determined by the apparent "author" of the story, i.e., a story recorded and reproduced by a teacher, but dictated by a pupil, is considered pupil-produced. It might be added that teachers often assist in discriminating these two categories by announcing the author of the booklet, if it is pupil-produced.

The second major category on Level 1 of Figure 1, Display Materials, includes Charts and Boards.

Display Charts include Experience Charts which are always, of course, homemade and Phonics Charts which may or may not be homemade.

Experience Charts may be composed of words, phrases, or sentences. The pupil (s) generate these charts with some direction from the teacher. Phonics Charts deal with letters or words and are used in a manner which focuses on the sound, form, or structure of the letter or word.

Charts which cannot be classified as either Experience or Phonics charts are tallied as "other charts".

Display Boards. Any use of the chalkboard or blackboard, whether for words or pictures, is tallied under "Chalk." Any active use of a bulletin board, or materials displayed thereon, is tallied under "Bulletin."

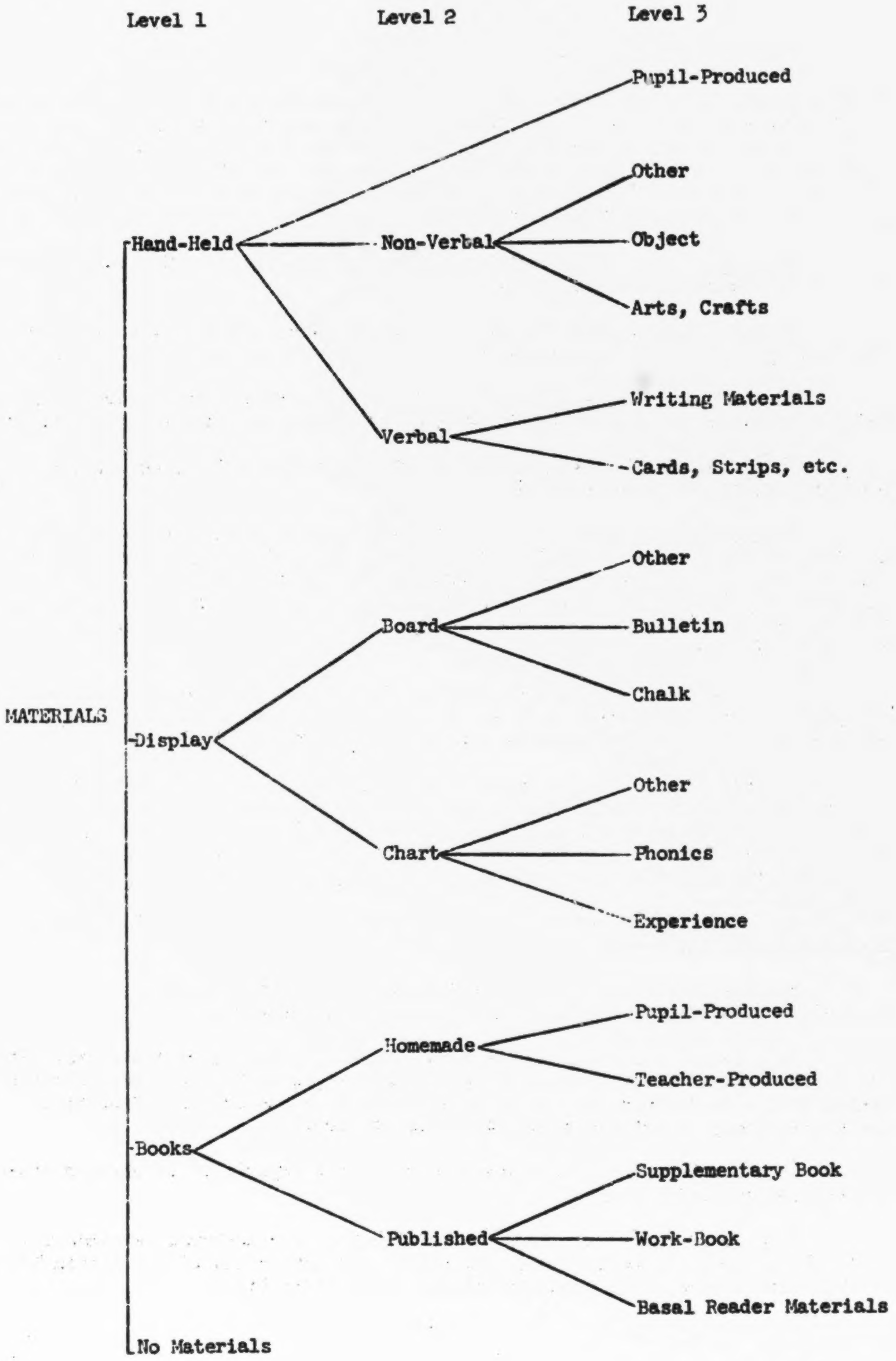
Level 1
Level 2
Level 3
MATERIALS
Hand-Held
Non-Verbal
Pupil-Produced
Other
Object
Arts, Crafts
Verbal
Writing Materials
Cards, Strips, etc.
Display
Board
Other
Bulletin
Chalk
Chart
Other
Phonics
Experience
Books
Homemade
Pupil-Produced
Teacher-Produced
Published
Supplementary Book
Work-Book
Basal Reader Materials
No Materials

Fig. 1. Schematic representation of decisions made in recording materials on OScAR Rs.

Examples of "other boards" are flannel boreds, sentence banks, etc.

Hand-held materials is sub-divided into Verbal and Non-verbal; and includes a special category, Pupil-Produced.

Hand-Held verbal materials involve cards and strips which typically contain letters, words, or pictures, and may be used in a variety of teacher and pupil activities. Other materials(such as a flannel board) may often be used along with hand-held cards and strips.

Writing Materials are such things as crayons, pens, pencils, paper, etc. when used by teacher or pupil to form letters or words, except that this category does not include chalk.

Non-Verbal materials includes three categories:

Arts, Crafts materials are distinguished from writing materials in terms of their use. A crayon used for drawing is arts-crafts material; one used for writing is writing material. On occasion, both categories will be checked for the same item, as when the pupil writes a sentence, then illustrates the topic described in the sentence. Use of modelling clay is checked here, but if the finished clay model is later used some other way, the category "object" would also be checked.

The sub-category "Object" refers to either commercial or homemade three-dimensional objects which are actually used in instruction. Globes, statues, leaves, masks, and the like would be tallied here.

"Other" hand-held objects are those hand-held objects (three-dimensional or not) which cannot be tallied elsewhere.

"Pupil-Produced" is an special category which is checked when any homemade hand-held materials are used. In such an instance, the material would be checked twice. If a picture made by a pupil were used, it would be recorded twice-under "card, strip, etc." and under "pupil-produced."

Inspection of the list of materials on the card will indicate the relationship between their arrangement and the category system just described.

Activities. In coding activities, the first discrimination to be made, at Level 1 of Figure 2, is between activities involving the teacher and activities not involving the teacher.

"Teacher" activities are sub-divided at Level 2 into Non-Interactive and Interactive.

Non-Interactive Activities include: "Reads aloud", which refers to the reading of any written material; "Talks, " which is self-explanatory; and "Illustrates, Demonstrates", which includes writing or drawing on the chalk board, showing how, and the like.

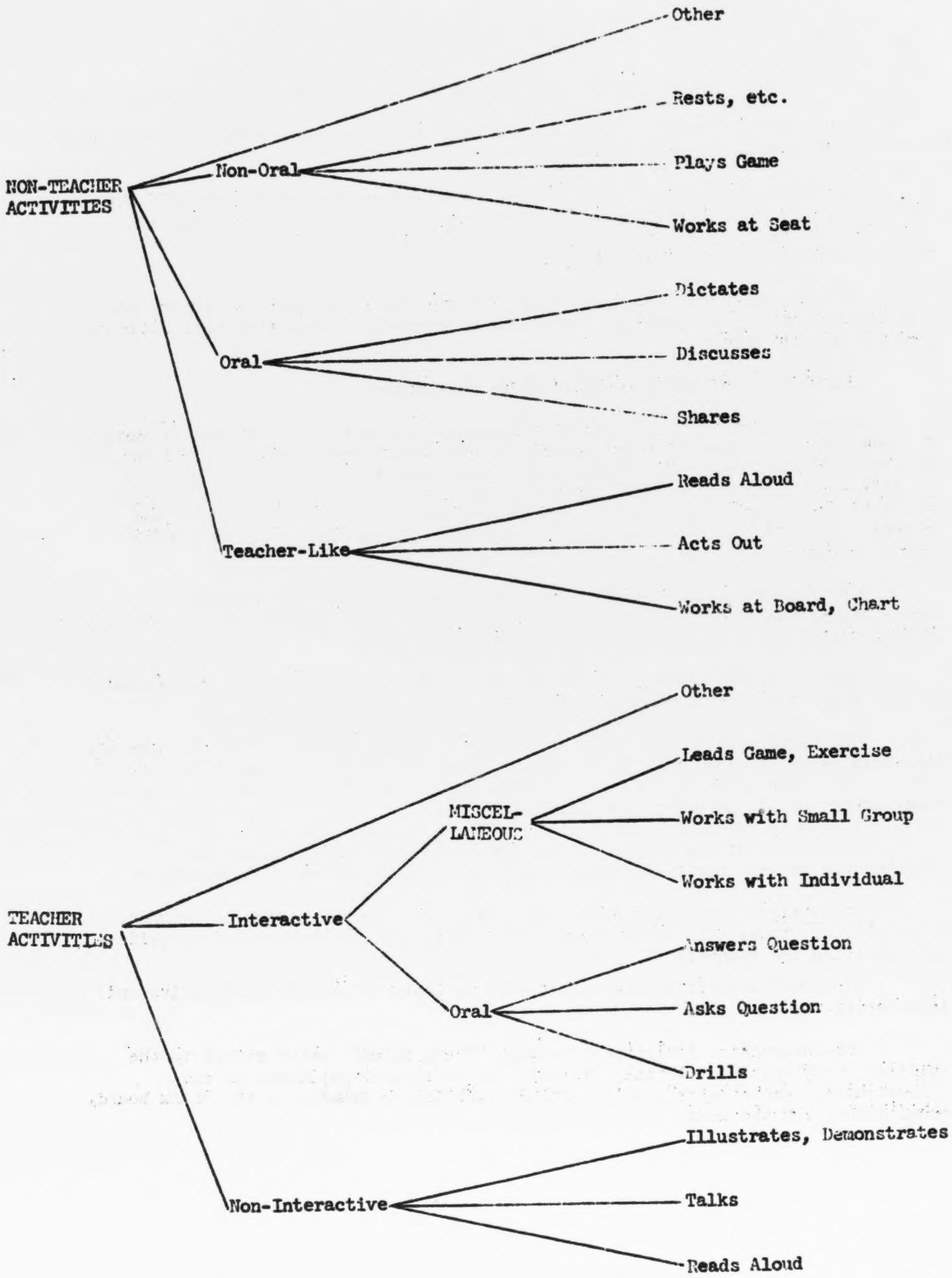
NON-TEACHER ACTIVITIES
Non-Oral
Other
Rests, etc.
Plays Game
Works at Seat
Oral
Dictates
Discusses
Shares
Teacher-Like
Reads Aloud
Acts Out
Works at Board, Chart
TEACHER ACTIVITIES
Other
Interactive
MISCEL-LANEOUS
Leads Game, Exercise
Works with Small Group
Works with Individual
Oral
Answers Question
Asks Question
Drills
Non-Interactive
Illustrates, Demonstrates
Talks
Reads Aloud

Fig. 2. Schematic Representation of Decisions Made in Recording Activities on OScAR Rs.

Interactive Teacher Behaviors are classified into two categories (on Level 3 of Figure 2): Oral and Non-Oral.

Oral Interactive Teacher Activities include Drilling, Asking Questions, and Answering (pupil-initiated) Questions.

"Drilling" refers to an activity in which the teacher elicits pupil responses of a vote, repetitive, mechanical type, often en masse. "Ask Question" and "Answers Question" should be self explanatory.

"Works with Individual" is checked if special attention is addressed by the teacher to one child, with the rest of the class being ignored(apparently); "works with small group" is tallied when a group containing fewer than half of the class appears to receive the exclusive attention of the teacher.

"Leads game, exercise" is tallied if (1) the game is teacher-led, and (2) is primarily of a non-cognitive or tension-release variety. If a teacher leads a song with which the pupils are familiar, one might tally this category. If the "game" is really a drill and does not seem to be fun, it is checked as a drill. If two or more pupils play a game by themselves the activity is recorded at "pupil plays game" (see below).

Very difficult discriminations or uncategorized teacher activities may be tallied under "Other."

Pupil Activities are classified at Level 2 of Figure 2 into three categories: Teacher-like, Verbal, and Small-Group. Teacher-like pupil activities involve the pupil's providing some instruction or illustration to the class, with more or less close supervision by the teacher, and are classified into three sub-categories (Level 4). "Works at board, chart," is tallied when one or more pupils receive instruction at any of the various types of boards and charts. "Acts out" refers to any type of instructionally-oriented dramatization by a pupil or group of pupils.

"Reads aloud" is tallied when a pupil reads several words or sentences aloud while the others listen.

Oral Activities include Sharing, Discussing, and Dictating.

"Shares" has reference to "experience sharing," an important component of the language-experience approach to teaching. Experience sharing involves a pupil's relating a personal experience in his own language and in his own way.

"Discusses" is tallied when pupil-teacher or pupil-pupil interactions occur, all focused about a particular topic. Discussions are typically teacher-led; however, pupil responses should modify the teacher statements to some extent.

"Dictates" is tallied when a pupil relates a sequence of words, phrases or sentences, which the teacher writes down. The pupil statements should not be highly structured by the teacher; "dictates" should not be checked when the pupil is instructed to fill in the missing letter or word in a word or sentence. "Dictates" would be tallied when, for example, the teacher records a pupil story, or when she records "words about winter."

Non-Oral Non-Teacher Activities" include "Pupil Works at Seat", "Pupil Plays Game", and "Pupil Rests, etc." Seat work here refers to solitary work, not to copying down dictation or material on the chalkboard. The type of game referred to is that in which the teacher does not take part - as when two pupils play a word game. The category "Rests" includes naps, snack periods, etc.

The category "Other" is used for any pupil activity not directly involving the teacher which does not fit into any other category.

Each activity which occurs during the Static Phase of an observation period should be recorded by a check mark in the cell opposite the activity category in which it fits and under the material category in which whatever material is involved belongs. If no material is involved in the activity, the check mark is made in the colum headed NO MAT. If materials of two or more types are involved in one activity the activity is tallied twice.

If the teacher reads a story from a library book, the check is made opposite RDS ALD and under SPL BK. If the pupils are at their seats, some writing and some stringing beads, checks are made opposite WKS AT ST under WRTG MAT and ARTS, CRFTS. If the pupils take a nap, a check is made opposite RSTS, ETC and under NO MAT.

Only one check is entered in any cell on the Static side, regardless of how many behaviors that fit that cell are observed.

Detailed Procedures - Dynamic Side

The dynamic side of CScAR R differs sharply from the Static side in that during the 6 minutes in which it is used an attempt is made to record each verbal statement made by the teacher and each interchange between teacher and pupil. Figure 3 shows in schematic form the discriminations which must be made by the observer in coding verbal behavior.

The observer attends primarily to the teacher. As soon as the teacher utters a verbalization, the observer make two judgments:

(1) is the statement related to reading, to other language-arts, or to neither?

(2) does the statement get a task for an individual pupil to which he is supposed to make an immediate response?

Language Arts here means any teacher behavior whose apparent goals involve language symbols; if the symbols are visual language symbols, the verbalization is classified under Reading; otherwise, under Other Language Arts. Teacher verbal behaviors concerned with numbers, concepts related to science, art, etc., or with classroom management are classified as Non-language Arts.

The decision that the teacher's verbal behavior falls into one of these categories leads the observer to one of the three major sections of the dynamic side of the schedule.

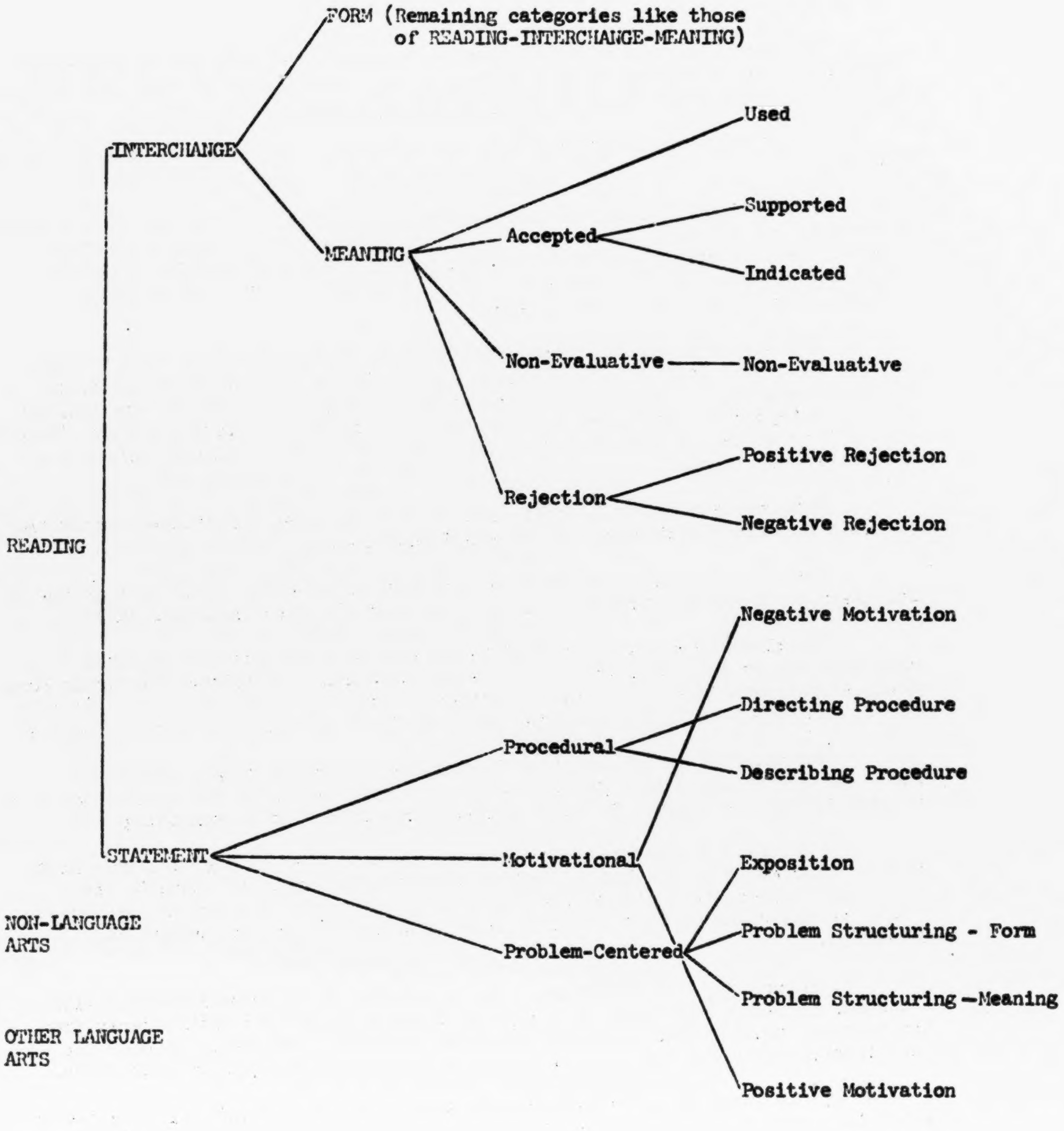
FORM (Remaining categories like those of READING-INTERCHANGE-MEANING)
INTERCHANGE
Used
Supported
MEANING
Accepted
Indicated
Non-Evaluative
Non-Evaluative
Positive Rejection
Rejection
Negative Rejection
READING
Negative Motivation
Directing Procedure
Procedural
Describing Procedure
STATEMENT
Motivational
Exposition
NON-LANGUAGE ARTS
Problem Structuring - Form
Problem-Centered
Problem Structuring —Meaning
OTHER LANGUAGE ARTS
Positive Motivation

Fig. 3. Schematic Representation of Decisions to be Made in Using OScAR Rd.

The decision that what the teacher says does not call for an immediate pupil response identifies it as a statement; a decision that it does call for a pupil reply identifies it as an entry to an interchange.

Statements are classified into six categories according to their apparent purpose.

Motivational statements are tallied as "Positive" or "Negative". "Positive" statements are intended to increase a pupil's motivation to learn, to reduce tension; or more simply, to make him feel better. Statements which might be tallied here are: "This is going to be a lot of fun;" "Oh, that's quite alright, don't worry about that," etc.

Negative motivational statements include statements which tend to make a pupil feel bad; most of them consist of a teacher's correction or criticism of pupil behavior. Statements varying widely in degree of severity are tallied in this category. The range extends, roughly, from a neutrally-stated: "Don't do that" (when such a statement does not appear to be a procedural instruction) to punitive shouting.

Problem-centered statements fall into three types: Problem-structuring-Meaning; Problem-structuring - Form, and Exposition.

Problem-structuring statements pose a problem to the class as a group, for example,"I wonder if anybody can tell me what the first sentence says?"

"Problem-Structuring-Meaning" is tallied when the problem involves understanding or interpretation of words or sentences. "Problem-Structuring-Form" tallies represent teacher statements concerned with the form, structure, or rote repetition of a letter, word, as for example, "What is the first word on page 3?

"Exposition" is tallied when the teacher statement simply provides information to the pupuls. Story-reading or story telling by the teacher would be tallied in this category. So would explanations of how to do something.

Procedural statements are classified as Directive or Descriptive. Both involve statements about what is to be done which are empty of content; the difference between them lies in the degree to which pupil behavior is restricted. "Today we are going to read a story" is descriptive; "Open your books" is directive.

Interchange. An interchange is an episode which normally begins with a teacher question, continues with a pupil response, and ends with a reply from the teacher, usually evaluative of the pupil response. One tally is made for each interchange under the type of entry, and opposite the type of evaluation.

By the entry to an interchange is meant the question asked by the teacher which initiates the episode. Entries are classified according to the type of task set the pupil; when it involves interpretation of a word, sentence, or other symbol, so the pupil must understand the symbol in order to execute the task, the entry involves meaning; if he need only recognize the symbol, it involves form only.

This same distinction is made in classifying Problem-Structuring Statements (see above). The difference between a Problem-Structuring Statement and the task-setting behavior which opens an interchange lies in the fact that the former does not call for an immediate pupil response. It sets a problem, usually for the class as a whole; but it does not set any individual pupil the task of answering a specific question.

No tally of an interchange is made until the teacher has evaluated (or failed to evaluate) the pupil's response. Basically the teacher may either reject or accept the pupils response..

When a teacher is teaching in a manner such that responses are specified to be correct or incorrect, incorrect responses are typically rejected.

"Negative Rejection" differs from "Positive Rejection" in that the former is less gentle and friendly. The negative rejection category will receive tallies representing a considerable range in emotive tone. Harsh rejections will be tallied here, as will be a neutrally stated "No, that's not right".

A "Positive Rejection" will usually imply that there was some merit in the response, even though it was not the one sought. "No, that's not quite right," "That's very good, does anybody have another idea?".

Acceptance is indicated by such replies as "That's right" "O.K.", etc. Unless there is some praise or enthusiasm, an interchange so evaluated is tallied as "Acceptance Indicated". If the teacher says "Fine!" "That's exactly right!" or otherwise goes beyond mere feedback, the interchange is tallied opposite "Support".

Many teachers often neither accept nor reject a pupil response but go right on to ask another question. Such an interchange is tallied as "Non-evaluated".

If a teacher goes ahead after an interchange has been terminated and uses the pupil's response in some way, e.g., writes it on the board, or asks another pupil to comment- a second tally is made opposite "Use".

In general, each statement is tallied once, and each interchange once, except in this one instance of "Use" in which two tallies will appear for one interchange.

If a teacher says, "I wonder who can tell me the name of a toy", this statement would be tallied in the OLA section in the box for PRB STR MNG. If she then says, "Mary, you tell us one," this is recognized as an entry to an interchange to be tallied in the OLA section under MNG, but not tallied yet. Mary says "A doll," and the teacher replys, "Yes". How many girls have dolls at home? The tally for the interchange is entered opposite ACC IND in the OLA section under MNG, and a second tally is made in the same section opposite USE under MNG. The statement "How many girls have dolls at home?" would be tallied as a problem-structuring statement, of course, in the same section.

CHART A

OFFICE OF RESEARCH AND EVALUATION, DIVISION OF TEACHER EDUCATION, CITY UNIVERSITY OF NEW YORK

BASAL MAT	WRK BK	SPL BK	PUP PROD	TCHR PROD	NO MAT	TCHR	CHART			BOARD			TCHR	CARD STRIP ETC.	WRTG MAT	ARTS, CRFTS	OBJ	OTHER	PUP PROD
							EXP	PV	OTHER	CHK	BUL	OTHER							
						RDS ALD							RDS ALD						
						TALKS							TALKS						
						ILLUS, DEM							ILLUS, DEM						
						DRLS							DRLS						
						ASKS QU							ASKS QU						
						ANS QU							ANS QU						
						WKS W IND							WKS W IND						
						WKS W SM GP							WKS W SM GP						
						LDS GM, EX							LDS GM, EX						
						OTHER							OTHER						
						WKS AT BD, CHT							WKS AT BD, CHT						
						ACTS OUT							ACTS OUT						
						RDS ALD							RDS ALD						
						SHARES							SHARES						
						DISCUSSES							DISCUSSES						
						DICTATES							DICTATES						
						WKS AT ST							WKS AT ST						
						PLYS GM							PLYS GM						
						RSTS, ETC							RSTS, ETC						
						OTHER							OTHER						
							EXP	PV	OTHER	CHK	BUL	OTHER							
BASAL MAT	WRK BK	SPL BK	PUP PROD	TCHR PROD	NO MAT	PUPIL	CHART			BOARD			PUPIL	CARD STRIP ETC	WRTG MAT	ARTS, CRFTS	OBJ	OTHER	PUP PROD

	S	D
M P PROJ		
SL, ST PROJ		
T P REC		
PHONO		
O H PROJ		
CAMERA		

GPG (S)		GPG (D)	
SIZE	T	SIZE	T

RMKS

DATE

TIME

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CHART B

RLA

STMT		INTRCHG		
			MNG	FM
	M+	R-		
	PRB STR MNG	R+		
	PRB STR FM	NON EVAL		
	EXP			
	DESC PROC	ACC IND		
	DIR PROC	SUP		
	M-	USE		

OLA

STMT		INTRCHG		
			MNG	FM
	M+	R-		
	PRB STR MNG	R+		
	PRB STR FM	NON EVAL		
	EXP			
	DESC PROC	ACC IND		
	DIR PROC	SUP		
	M-	USE		

WLA

STMT		INTRCHG	
	M+	R-	
	PRB STR MNG	R+	
	PRB STR FM	NON EVAL	
	EXP		
	DESC PROC	ACC IND	
	DIR PROC	SUP	
	M-	USE	

11-64 D. M. Medley - Lou H. Smith